ESSENTIAL SUSTAINABILITY: FROM UTOPIAN THEORY TO PRACTICAL APPLICATION

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ABSTRACT

Essential Sustainability: From utopian theory to practical application

This research aims to examine the essence and practicability of sustainability. The impetus for undertaking the study is the conundrum that the more pressing the needs become for embarking on sustainable development the more apparent is the resistance to systemically embrace it. The current growth paradigm appears to be so ingrained and dominant in our society, that despite overwhelming evidence of the need to embark on sustainable development the required intervention has remained elusive. The study examines the critical barriers to achieving sustainability as well as the potential to overcome them. This is addressed from a theoretical as well as practical perspective through primary and secondary research methodology. Three areas of investigation are undertaken: The field of sustainability spanning the period from the publication of the Brundtland Report in 1987 till today, the field of utopianism from Plato till current time and thirdly a case study consisting of three diverse, contemporary cases engaged in the process of implementing sustainability. This defines the investigative foundation from which the research questions are addressed, and the aims and objectives are met. The research indicates, that translating sustainability into practical implementation has generated significant responses, both positive and negative. A broad spectrum of barriers is uncovered in the research that hinders the advancement of sustainability. Investigating the utopian aspect of sustainability leads to a deeper understanding of the construct and defines it as a utopian theory advocating a paradigm shift. The analysis of the cases reveals key process factors for positive outcomes in a transition to sustainability and constellates them into a potential framework for wider use. Further research into the process factors based on the evidence of this investigation can consolidate their usability and validity. The research concludes that it has predominantly been smaller, intentional undertakings by civil society that has moved the sustainable development agenda forward and that it is primarily the current economic growth paradigm that is hindering the needed transition.

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This has been a long process. The world has changed dramatically since I started the research for the PhD at the end of 2010, particularly with regard to the field of sustainability. During the periods where new assignments have stopped my studies, I have worked with implementing sustainability in real life. Looking back, both the research, my practical work as well as the increasing sustainability awareness in the world have contributed to my now expanded field of knowledge.

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carry on the research and complete the PhD.

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This thesis is dedicated to our grandchildren: Jacob Kurlansky-Thom, Alexander Graham Shepherd, Chloe Sofie Blincoe Michaelsen, Sophia Leonor Shepherd and David Christian Blincoe Michaelsen. I am sorry my generation did not course correct when we had the time - because you will have challenging times ahead. I hope there will be a new world 're-set' after Covid-19 that will help change the direction towards a global state of sustainability. I take heart at the way your parents have brought you up and have expanded your intelligence, interest and keen awareness of what is happening around you. I believe that you five young people have the resilience, courage and what it takes to meet the challenges that lies ahead as well as contribute to rebalancing our world.

With love and gratitude to you all.

DECLARATION

I declare that the work contained in this thesis has not been submitted for any other award and that it is all my own work. I also confirm that this work fully acknowledges opinions, ideas and contribution from others.

The first part of the research including the transfer from MPhil to PhD, literature review research as well as the case study interviews was carried out at the Research Department at Brighton School of Art, Brighton, from October 2010 to December 2015. The final part of the research including the analysis of the case study data and completion of all chapters has been carried out at the Research Department at Kingston School of Art, London, from January 2019 to May 2020.

As the case study research was undertaken whilst associated with Brighton University, I hereby declare that I have followed the guidelines of the University at the time of the research. I have read University of Kingston's research ethics' guidelines and accept responsibility for the conduct of the procedures I have undertaken. I have adhered to the ethical practices recommended by both research institutions.

Name:

Karen Sofie Blincoe

Signature

Date:

1st October 2020

CHAPTER ONE
INTRODUCTION

"*What the soul seeks to uncover the heart cannot fail to attract*"

- *Brahma Kumaris.*

Fig.1.0 ICIS sustainability model (ICIS, 2013).

CHAPTER 1: INTRODUCTION

1.1 RESEARCH MOTIVATION

Mainstream activities on implementing sustainability have progressed too slowly to effectively address what is needed to combat the negative impact on societies caused by the current unsustainable development and growth paradigm (IPCC, 2019). The results (or lack of results) from the latest COP 25 in December 2019 confirm this. The perils have increased as the effects from the collapse of four of the nine planetary boundaries including rate of extinction (biodiversity), atmospheric carbon dioxide (climate change), flow of nitrogen and phosphorus (pollution of water) and deforestation are becoming more pronounced (Science for Environment Policy, 2015). The recent years have seen a plethora of publications predicting an apocalyptic future. The seriousness of the current situation cannot be underestimated.

Working with sustainable development for many years (ICIS Centre, 2002-2014; Schumacher College, 2006-2008; Chora Connection, 2014-2018) I have experienced an increasing frustration and also puzzlement with regard to the reasons why the progress to course correct has been so slow. Why has the transition from the current unsustainable state to becoming sustainable not been effected as a matter of course given the research and the evidence available?

This thesis is a response to and a reflection on the above. It is an enquiry into the complex field of sustainability including the nature of the construct, the barriers to implementation as well as an examination of practical implementation initiatives.
To be able to understand the issues at a deeper level the research examines attempts to radically change societies throughout history not from the perspective of new development theories but from the perspective of utopian thought, models and experiments due to the more radical nature of the latter. The main focus of the enquiry into sustainability comprises a case study consisting of three practical contemporary examples where an organization, an island and a multinational corporation have engaged in sustainable development activities over a decade or longer.

The research is an enquiry by a practitioner who has worked with sustainability issues at a theoretical as well as practical level in the public and private sectors for almost

three decades. The work has been set within an educational context addressing content development as well as organizational change. The thesis is therefore addressing a professional audience who has to or wants to work with the practical implementation of sustainability rather than developing more theory. It is for practitioners and leaders who see the urgency of action but need to both understand the essence of sustainability as well as be given informed pathways to engage in the realisation of the ideas.

The following gives an overview of the research undertaken including the background for the investigation, the problem statement, the research questions, the aims and objectives, the methodology, the structure and content of the thesis.

1.2 BACKGROUND

The winding road to researching sustainability

Parallel to the bread and butter work, KB Design, my design company (1984-1991), became in the 1980's interested in environmentally friendly design, as it was called then. Two people were specifically inspirational in this turn of direction from traditional design-based work to focusing on environmental issues. Niels Peter Flint (Flint, 2020) is a Danish architect/designer, who worked as a product designer for Sottsass in Milan in the 70's. Sottsass Associati (Sottsass, 2019) was engaged in architecture as well as in design for large international industries producing consumer goods. Niels Peter turned against that which he called *wasteful* design and started a movement against the *throw-away society*. He initiated an international environmental design network called O2 International, later O2 Global Network. KB Design became the UK-based part of this network and started a new design direction.

The second inspiration was Anita Roddick, the founder of the Body Shop, who I met when a design assistant at the Yellow Pencil Company in London. We developed the original Body Shop identity, anti-design packaging and interior design of the first three Body Shop shops in Chichester, Brighton and Carnaby street. Anita Roddick was a businesswoman and an activist. She and the company supported a number of NGOs and charities specifically advocating animal-free testing. Body Shop was the first multinational business that used recycled paper and vegetable-based inks for its annual reports, the first in 1984. The company used natural ingredients in their

products that were ethically sourced and produced the first re-fill concept in the cosmetics business (Roddick, 2001).

Due to the inspiration of the two pioneers mentioned above and others such as Buckminster Fuller and Victor Papanek, KB Design started to work with environmentally friendly design. At that time the most important environmental issues were acid rain, pollution, waste and toxic landfill sites. The green mantra was to recycle, reuse and repair. The throw-away discourse became increasingly relevant. People involved with environmentally friendly activities were at that time not mainstream but were often activists and/or pioneers. Environmentally friendly initiatives were niche activities as the mainstream was not particularly concerned with the negative sides of globalization, free trade issues or industrialisation (Papanek,1995; Fuller, 2008).

From London I went back to Copenhagen in 1991 and became Head of Institute for Communication at the Danish Design School in Copenhagen (now part of KADK, the Royal Academy of Architecture). By then the theme had progressed from environmental design to sustainable design. As it was difficult to combine sustainability with mainstream design education, I decided to leave the Danish Design School after some years and went to Amsterdam to work on a UNEP-SPD programme on research into developing countries with a focus communicating sustainability. Through the research it became clear that the need for sustainability was particularly important in the Western countries and not in the developing countries as careful use of resources, repair, reuse and recycling often was necessary for survival. The conclusion of my research was that it was in one's own backyard in the West that the problems should be addressed before turning the focus on developing countries.

To address my own backyard, I returned to Denmark and set up an educational platform based on short courses for professionals in design, architecture and related fields in 2001. It was called ICIS, the International Centre for Creativity, Innovation and Sustainability (2019). The essence of the teaching was sustainability and leadership orientated. The aim was not only to educate designers and architects in sustainability but also to supply them with tools and skills to become leaders within their fields. The belief was that embedding sustainability in our societies required innovation, creativity and leadership.

The focus of ICIS was to teach designers leadership skills alongside sustainability topics, based on the observation that decision-making rarely involved designers or creative professionals, neither were they invited into think-tanks or on advisory boards. Being a sustainability advocate I attended numerous conferences on the topic worldwide and was often the only designer present. This observation was puzzling. Why did sustainability researchers, scientists and leaders call for creativity and innovation to implement sustainability and not consult the creative professions? The observation was enhanced by the fact that hardly any creatives were called in to address sustainability challenges from the podium.

My perspective of sustainability broadened to include all aspects of society (not only design) as the director of Schumacher College in Dartington, Devon, 2006-2008 (Schumacher, 2006). The College was created in 1991 to address the negative effects of globalization. Schumacher College ran short courses on topics such as climate change, pollution, desertification, extinction of species, biodiversity, fossil fuel issues, politics, science, biology, education, spirituality. It also offered a MA in Holistic Science for adult participants at that time. Here highly regarded scientists, writers, researchers, teachers, economists, politicians, astrologers, astronomers and so forth met to engage with the participants in discourses on the latest theories and thinking, both radical and reformist, some of whom have been cited in this research. The college was and is one of its kind and the impact the teachers, the philosophy and the ambience of the place had on my sustainability thinking was transformational in many ways.

It was also at Schumacher College the foundation for the subsequent topic for a PhD investigation was laid. As a director I met with nearly all visiting teachers and lecturers, mostly at the end of their one-to-three-week engagements at the college. Invariably I asked questions relating to the seriousness of the adverse effects of human behaviour on the planet. Frequently they, especially the scientists, would refrain from answering directly. And those who did, talked about the situation being more serious and critical than the mainstream perception was at that time. The sense was that they knew more than they wanted to share and that the predicament was worse and more serious than we were led to believe. Looking at the world situation today one can only agree that they were right.

1.3 PROBLEM STATEMENT

As a result of resigning from Schumacher College and returning to Denmark in 2009 I decided to start researching sustainability and study for a PhD. A contributing factor to this decision was the very negative and disappointing results of COP15 in Copenhagen. Inexperienced conference leadership and hidden agendas resulted in an agreement, the Copenhagen Accord, which by many participants and observers was called disappointing and even a fiasco as it was not a legally binding agreement (Ash, 2010).

Due to the nature of my career it seemed logical that the research should focus on design issues in the context of sustainability. The question why designers did not fill leadership or indeed advisory roles in sustainable development initiatives had been a factor in the development of the courses at the ICIS Centre. The topic of leadership in the design profession with regard to sustainable development was therefore the first suggested research focus. The underlying postulation was that the creative professions were key in developing new thinking in changing societies. However, on reflection and discussion with my then supervisors it was decided to change direction to encompass the broader agenda, which had been even more puzzling during the work with sustainability. My fundamental question was whether sustainability and sustainable development as defined by the Brundtland Report in 1987 (Section 2.4.1) were indeed possible in the current globalization and growth paradigm as inferred at the beginning of this chapter. Definition of the current dominant paradigm which is referred to throughout the thesis is given in Section 2.3.1.

To narrow the topic to fit within the scope of a PhD thesis I decided to point to specific issues in the equation such as the key barriers to sustainability in the current dominant paradigm. In addition, due to many practical initiatives undertaken over the past three decades it was equally important to examine results of such undertakings. In particular undertakings that had achieved positive, valid and recordable results from engaging in a sustainable development process. This in order to assess whether ways to overcome barriers to sustainability already existed that might be instrumental to creating a practical framework for future adoption. Due to my belief that sustainability is natural and logical but constitutes a profound next step in societal change I decided to examine utopianism as part of the research. It was evident that changing society

from an unsustainable to a sustainable state required a radical and conscious effort. This aspect supported an enquiry into radical ideas in the past, how they had emerged and whether they had been implemented, if at all.

1.4 RESEARCH QUESTIONS

The investigative foundation for the research was therefore provided by the following two research questions, developed in response to inferences drawn from the above as well as from research for the literature reviews, and were as follows:
RQ 1: What are the barriers to achieving sustainable development in the current dominant paradigm?
RQ 2: Can practical examples of implementing sustainable development initiatives in society indicate ways in which a state of sustainability can be achieved?
A full description of the methodology to address RQ1 and RQ2 is stated in Chapter 4 on methodology (Section 4.2).

1.5 AIMS AND OBJECTIVES

The aims and objectives of the research project were several. One aim was through the examination of relevant literature to bring clarity to a field that seemed both intricate, complex, fragmented and fraught with problems, with no real evidence of practical, coherent, systemic or sustained progress. The objective was to uncover some of the key barriers to sustainability. A second aim was to explore sustainability in a utopian context with the objective to determine whether sustainability was purely an academic theory and a non-implementable utopian construct, or a construct that could be applied in a practical societal context. A third aim was to examine three cases involved in implementing sustainable development, with the objective to determine whether key lessons learnt could be applied to other similar circumstances in order to achieve sustainability. In other words, was there a case for developing a framework that may further sustainable development initiatives?

The aims and objectives were thus the following:
The aims:

- To map the field of sustainability, its complexities and barriers.
- Examine sustainability in a utopian context.

- Examine three cases involved in implementing sustainable development.
- Assess whether and what lessons can be learnt from real world examples engaged in sustainable development initiatives.

The objectives:

- Determine whether sustainability is a utopian construct.
- Determine whether sustainability is a construct that can be applied in a practical societal context.
- Uncover and define key barriers to sustainability.
- Develop a framework, if possible, for a set of key process factors based on the case studies that might be used universally.

The sustainability agenda has in the main been advanced by individuals such as researchers, writers, visionaries, pioneers, enlightened entrepreneurs and business leaders who have seen the effects of the unsustainable behaviour and believed in the importance of sustainable development. Sustainability has not as yet been enacted by governments in a systemic and infrastructural way. The research will argue that a transition to a state of sustainability may only be possible given sufficient time and through a synergy of a number of profound change factors.

The examination conducted used both primary as well as secondary research data i.e. the literature reviews on the field of sustainability (Chapter 2), utopian experiments from past history (Chapter 3) and findings from current experiments and attempts to effect sustainability (Chapter 5). The latest IPCC report on climate change (2019) claims that to curb CO_2 emissions and its negative impact on humanity action must be taken now through an immediate and radical rather than an evolutionary process. Time is a crucial factor if the goal to curb climate change is to be met before the effects become too extreme and damaging.

Effecting sustainability has become a growing concern. The two key challenges to be met are one: how to implement sustainability in practical terms with regard to the tools, skills and methods to use - and two: the will and impetus to do so. In order for this to occur tangible and intangible barriers to transition initiatives need to be understood to be able to assess what is required to overcome them and whether it is possible to achieve the necessary results at all. The goal of the research project is to examine and get clarity on these challenges.

A great deal of research has been focused on the development of a variety of application methodologies in the form of principles, models, methods, indicators, monitors and assessment tools. However, whilst some progress has been made worldwide the general trend has been business as usual, claiming that sustainable development is too complex and too expensive to engage with. Since the start of the research project in 2010 no specific plan of action is as yet fully in place anywhere, although the 17 Sustainable Development Goals (UN, 2020) present a potential way forward.

1.6 METHODOLOGY

The methodology comprised both primary and secondary data collection in a qualitative study. The study required critical examination of secondary data on sustainability both to define its essence and to document its transition from being a theoretical construct to becoming an effective tool in real-life situations. The study required primary data collection on practical processes to implement sustainability. For this purpose, a case study was chosen as the most relevant methodology. These conditions were the primary motivators for the choice of the research design and methodology adopted. The research design is outlined in Fig 1.1.

Research Design

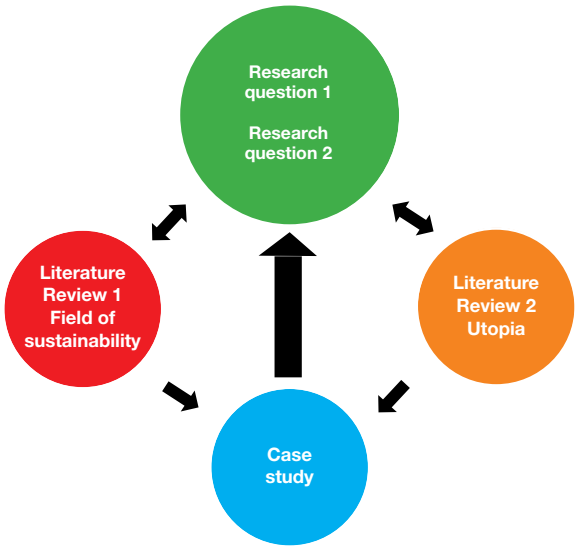

Fig. 1.1: The research design, including literature reviews and case study. (Kurlansky, Blincoe)

The research was divided into two parts. Secondary data collection examining sustainability mainly from a theoretical viewpoint, and primary data collection examining current implementation processes from a practical perspective. To address the aims and objectives a research design that supported the exploratory and descriptive nature of primary research was developed. The research design consisted of an overall qualitative approach as it aimed to gather an understanding of the field of sustainability, the field of utopian experiments as well as creating a new field of knowledge of current practical examples. A research approach using secondary data collection methods only was not sufficient for the study but was considered relevant for the first part of the investigation. Enquiry into the nature of the theoretical construct of sustainability, including the utopian investigation, was mainly answered through the analysis of the information and knowledge gained from the literature reviews and secondary data.

The second part of the investigation dealt with an examination of three cases. For this purpose, a multiple case study approach was chosen as the most appropriate research methodology (Section 4.3). Data collection was conducted from the samples through open-ended interviews. Data from the interviews constituted the field to be analysed in conjunction with secondary data relating to the circumstances of each case. The three cases were examined and the data from each was analysed, compared and discussed (see Chapter 5).

The findings provided some answers to the research questions and uncovered common factors, from where the outline of a framework for practical use might be generated. The factors are listed and described in Chapter 6. In addition, topics emerged that pointed to an opportunity for further research (Section 7.5).

Fig. 1.2 on the following page illustrates the research field divided into the three sections. The first section outlines the fields examined. The second points to areas of new knowledge generated. The third section addresses the research questions.

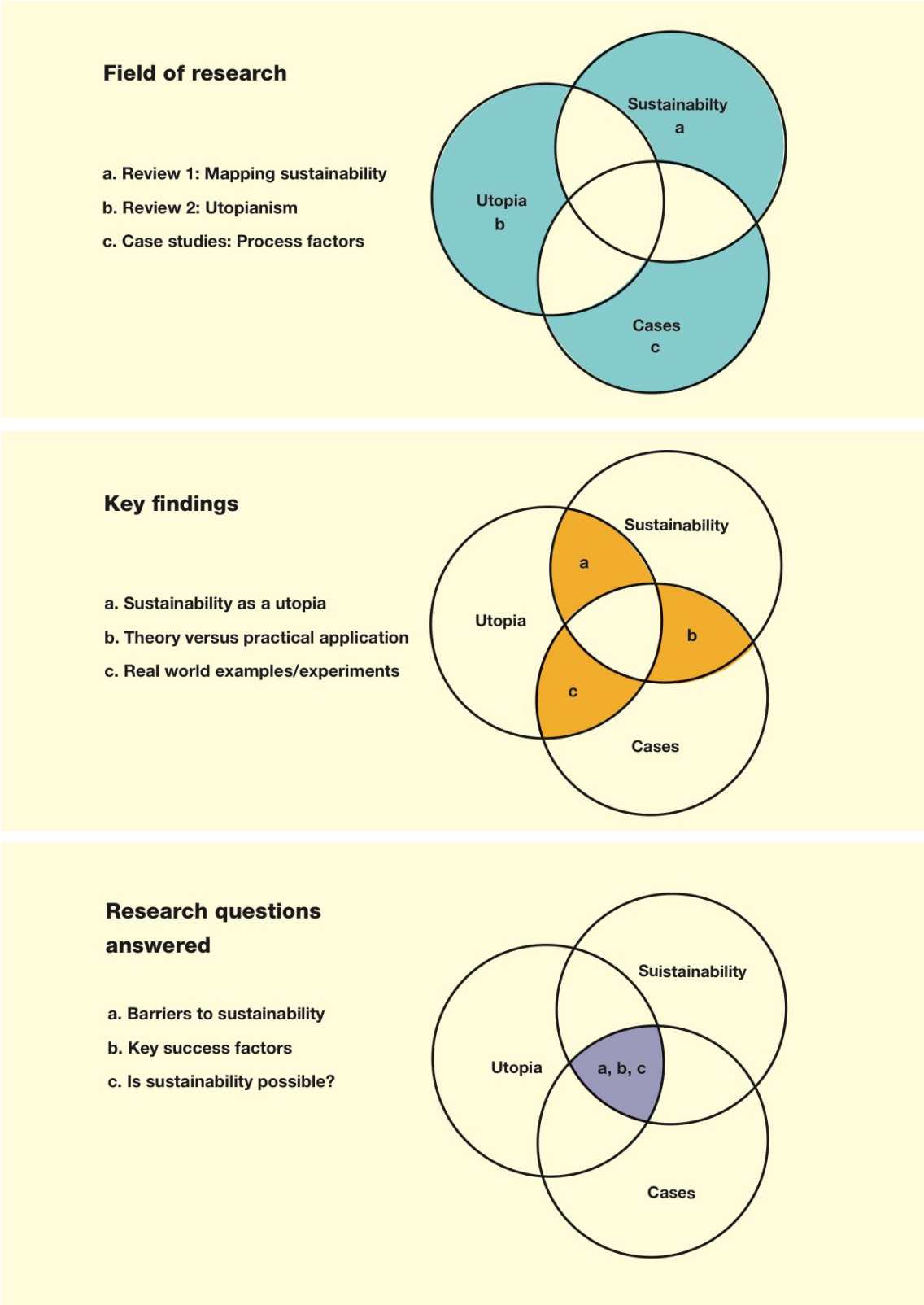

Fig.1.2: The field of research. Top: Areas investigated; Middle: New knowledge generated; Bottom: Key questions answered (Kurlansky, Blincoe).

1.7 STRUCTURE OF THE THESIS

An overview and brief summary of the six main chapters will now follow thus providing a descriptive outline of the thesis:

Chapter 2: Literature review 1 - Mapping sustainability

In this chapter literature is examined that is of particular relevance to the study of sustainability. The aim is two-fold. Firstly, to provide an outline of the wide and multi-facetted field of sustainability, its origin, definition as well as critical models and methods developed to effect implementation. Secondly to explore the field to provide a foundation for revealing and understanding the barriers to sustainability. Thus, situating it firmly within its field knowledge, whilst facilitating deeper levels of enquiry and locating key themes and issues.

Chapter 3: Literature review 2 - Utopianism

In Chapter 3 a second review of literature on the topic of utopian theories is undertaken to assess how these radical theories have succeeded or failed in impacting societal change over time. Linking this to the sustainability construct, its essence and the attempts at translating it (Brundtland definition of 1987) into practical application provides further contexts and knowledge for the research questions to be addressed. A comparison of sustainability and utopia provides further insight into the complexity and barriers to sustainability being realised. The examination of real-world utopian experiments, where some have failed and some still exist, provides additional knowledge both to the query into barriers as well as to the query into key process factors. The chapter on utopianism highlights the transformative impact a theory such as sustainability or indeed sustainable development is perceived to have on the society in which it is implemented.

Chapter 4: Methodology and case studies

The qualitative methodology, through which the research questions are addressed, is discussed in the first half of the chapter. The relevance of the methods employed are explained to justify the orientation of the research, in particular the case study. The positive and negatives aspects are discussed in detail. The second part of the chapter delves into the context of case study research undertaken and the aspects covered.

In the final part of the chapter the three case studies are presented. The case studies comprise of three diverse examples: an island, a faith community and a multinational company. The cases are compared in terms of the processes undertaken to achieve the desired outcomes. Key lessons learnt are assessed with regard to the processes and methods employed as well as the difficulties experienced.

Chapter 5: Case study report

Chapter 5 comprises narratives of each of the three case studies: The Danish island of Samsø, Brahma Kumaris, an international faith community, and Novozymes, a Danish multinational company specialising in production of enzymes. The descriptions of the cases are based on data from the interviews as well as on secondary data. The structure of the descriptions follows the same headings and relate directly to the interview questions asked. The main focus is on the specific process that each case engaged in including the successes and barriers experienced. The three narratives form the basis for the analysis and discussion of the data in Chapter 6.

Chapter 6: Analysis, comparison and discussion of case study data

Chapter 6 examines, compares and analyses the case study data and assesses the findings. Commonalities between the cases are documented including the success factors. These are explained in detail. The lessons learnt provide both positive insights into the processes and reveal difficulties and barriers to success as perceived by the interviewees. The barriers uncovered are discussed and methods to overcome them are noted.

Chapter 7: Discussion and conclusion

In the final chapter, conclusions are formed and presented. The research questions relating to barriers and key process factors are addressed from the three perspectives: current state of sustainable development, utopian theories and historical examples as well as the practical experiences from the three cases. Views on the overall findings are presented and further research topics are listed. New contributions to the field of knowledge made by this thesis are described including the difference between implementing sustainability and sustainable development. In addition, the utopian perspective in the context of sustainability, the range and importance of barriers as well as the process factors. The chapter finishes with overall reflections and observations on the results of the research.

CHAPTER TWO
MAPPING SUSTAINABILITY
Literature Review, Part 1

"*The term sustainability has become a familiar part of our social lexicon, yet something keeps this concept from bringing about transformational change*" - *Farley and Smith, 2015, p. 3.*

Image removed for copyright reasons

Fig. 2.0: The 17 Sustainable Development Model (UN, 2020).

CHAPTER 2: MAPPING SUSTAINABILITY

2.1 INTRODUCTION

The literature review consists of two parts and addresses two different topics: sustainability in Chapter 2 and utopianism in Chapter 3. This chapter conducts an enquiry into the essence of sustainability and the attempts that have been made to translate the vision of 1987 developed by the World Commission on Environment and Development (UN, 2015) into a workable strategy for practical implementation. The chapter draws on research and knowledge of the field of sustainability from a variety of researchers and writers. In addition to mapping the field the review seeks to uncover barriers to sustainability. David and Sutton (2011) claim that qualitative methods produce information and knowledge on particular topics studied and that the conclusions can be regarded as propositions or informed assertions. They argue that depending on the quality of the data collected and analysed, also from literature reviews, that these assertions can be regarded just as valid or non-valid as the findings from a case study, given the risk of bias in the latter. Any conclusions based on a thorough analysis of solid data can therefore be regarded as a valid generation of knowledge.

The goals of the review were first of all to establish the basic, critical aspects of sustainability by defining its essence, scope and reach through research conducted from 1987 till today. Secondly to assess the processes and barriers to bridging the gap between the theory of sustainability and its practical implementation. The historical time frame spans from the publication of the Brundtland report in 1987 till today. The process to focus on environmental issues globally started already in 1972 with the UN's first international conference on the environment (Conference on the Human Environment) also called the Stockholm Conference (Farley and Smith, 2014). The Brundtland Report was chosen as the starting point for the research as it publicly defined and advocated sustainable development as a new direction for societal development in order to curb the negative effects of industrialisation and globalisation.

The review concludes by assessing the trajectory of the findings in terms of the implementation of sustainability in the short and in the long term.

Sustainability is essentially a new vision for the future of the planet. Caradonna (2014, p.5) writes that: “It [sustainability] means creating a “green”, “low-carbon” and “resilient” economy that runs on renewable energy and does not support growth that would impair the ability for humans and other organisms to live in perpetuity on the Earth”. Caradonna (2014) also believes that the concept of sustainability has a utopian aspect to it as it advocates "decentralized forms of democracy that support peace and social justice" and that we have a choice of two paths either to pursue business as usual or recreate the way we live (2014, p.5).

As the time frame has become increasingly important (IPCC, 2019) a long-term view is currently not part of the discourse on sustainability and sustainable development as the stresses on the planet and its inhabitants caused by human activities, need to be addressed now. There is scientific evidence stating that there is a 10-year window from 2020 to 2030 in which to curb CO_2 emissions in order to keep global warming below 2 degrees Celsius**.** The short time frame for implementation and integration is therefore crucial as documented by many scientists (IPCC, 2019). Many levers to aid the transition have been created and designed during the past three decades. The UN's 17 Sustainable Development Goals is the latest attempt to create a universal, mainstream and practical application and integration model for faster implementation of the sustainability parameters (Hildebrandt (ed.), 2016). However, the recent IPCC report on global warming (2019) shows that CO_2 emissions are increasing and that the temperature is rising. 2019 is said by European scientists to be the second-hottest year on record (Fountain, 2020). It can be argued that despite attempts to translate sustainability into an operational model, as this chapter documents, the question remains whether it can be realized in time to curb global warming. This query is one of the focal points of the research.

2.1.1 Literature reviewed

The field of sustainability is relatively new as an academic discourse and field of study. It is within the past 2-3 decades, specifically after the Brundtland Report 1987 (UN, 2015), that research became increasingly focussed on topics of sustainability and sustainable development. Education in sustainability only became a policy after the Rio Conference in 1992 (Kirby et al (ed),1995). As a consequence, the amount of research and reference material was limited until early this century. Since then the discourse, research and literature on the topic have flourished. The research for this thesis

commenced in 2010. The main part of the literature review on sustainability and sustainable development was written during the first two years of the research period 2010-2012 with an update in 2019. Choosing the reference material for the literature review presented a challenge in 2010 as the amount of relevant and qualitative reference material sought was relatively limited. Sustainability is multidisciplinary and at the start the focus of the global sustainability discourse was mainly on environmental issues specifically with regard to pollution, climate change and resources. Research into the broader perspectives of the triple bottom line balancing the environmental, social and economic issues was limited. Not all existing research was relevant to this investigation as the aims, objectives and main focal points of the thesis dealt with defining and outlining barriers to sustainability as well as exploring and documenting practical implementation solutions. The references sought thus had to include social, economic and environmental aspects, solution-based theories as well as research discussing barriers to sustainable development.

To ensure that the data on sustainability was up to date the UN IPCC reports (IPCC, 2020) were referenced frequently with the view to access the most valid and factual information. The IPCC reports are collations of the work of many researchers worldwide and are as such regarded as reliable sources of environmental and sustainable development data. The Stockholm Resilience Centre was a more recent and respected research centre focusing on global sustainability, specifically the nine planetary boundaries and was therefore also cited in the review on sustainability. Other earlier references included a number of authors recommended by the University of Cambridge as representing "some of the world's best analyses of the global social, environmental and ethical challenges we face and the creative solutions needed to tackle them" (Visser, 2009: p. 8). These included a broad mix of authors and researchers that critically addressed a wide range of challenges particularly regarding the embedment of sustainability and sustainable development. The diverse perspectives of the references were necessary to include the broader aspects of sustainability and not only addressing environmental issues. Among some of the recent publications referred to in the thesis include critical views on sustainability (Farley and Smith, 2014) as well as perspectives from psychologists such as Michael Harvey (2019). In addition, the reference material included authors known to the researcher such as visiting lecturers to the Schumacher College, the ICIS Centre as well as Danish professors, who have researched methods of analysis such as the Life-

Cycle Analysis as well as the recent emergence of the 17 Sustainable Development Goals. It can be argued that the references for Chapter 2, should specifically reflect the multidisciplinary aspects of the sustainability and do so.

2.2 CONTENT

"*The concept of sustainability is fairly straightforward. Achieving sustainability in the real world presents a daunting and complex challenge*" *(Kibert et al, 2012, p.2).*

The aim of the literature review is not to chart a perfect documentation of sustainability but to demonstrate the wide reach and many levels of interpretation of the concept. It is acknowledged in the world of design that the solution to a problem can be found within the problem itself (Pentagram,1978). In this context the research takes issue with the frequently used Einstein quote: "We cannot solve our problems with the same thinking we used when we created them". If a problem is examined thoroughly from a variety of perspectives, the task to solve it becomes clearer and the solution becomes more realistic, relevant and appropriate. Solutions can thus be generated with the same thinking but encompassing different aspects and focus points. This is the perspective from which this research is undertaken. The intention of the examination of the field of sustainability is to define the essence of the construct, examine its reach, complexity and barriers and thereby potentially uncover solutions.

The chapter is divided into different sections. The elements described in the first section are aimed at defining the context and concept of sustainability outlining the field, its reach and impacts on society. The middle part of the chapter is dedicated to key principles, models and methods, and the last part of the chapter outlines indicators, standards and certifications with which to measure and assess the implementation process and progress. The chapter closes with an assessment of the concept in the context of barriers and obstacles to practical application.

The following will be addressed:

- Context.
- Definition of sustainability.
- Sustainable development.
- Implementation of sustainability.

- Principles for sustainability.
- Models, methods and monitors.
- Indicators, standards and certifications.
- Summary.

The chapter will document how complex, multi-facetted and multi-dimensional the sustainability concept is. Many attempts to adapt it to fit within many contextual settings in mainstream society have been made since 1987 without achieving the required outcomes. The resistance to engage in sustainable development initiatives must be understood and addressed, if effective pathways leading towards a more sustainable future are to be created.

2.3 CONTEXT

Sustainability, as defined in the Brundtland Report (Section 2.4.1), is a relatively recent neologism. However, some of the individual parts that make up the concept, for example the environmental, social and ethical dimensions are not new in historical contexts. Many societies have in the past, even centuries, had to deal with environmental challenges such as deforestation, soil erosion, drought, crop failures and polluted rivers (Caradonna, 2014). Diamond (2011, 2012) describes how advanced societies have collapsed due to environmental and resource problems. Societies have outgrown their ability to sustain continued growth similar to the situation we are faced with today (Rahworth, 2018; Hildebrandt (ed.) 2016; Caradonna, 2014; Piketty, 2013; Schumacher, 1993).

2.3.1 An unsustainable world

The current political and economic paradigm

Sustainability and sustainable development (Section 2.4) were developed by the UN as a global approach to combat the adverse effects of industrial development and globalisation. The wide issues to be addressed represented a complex challenge given the current growth paradigm into which sustainability was introduced. This paradigm is here defined as an economic paradigm based on neoliberalist principles and values introduced with the reign of UK Prime Minister, Margaret Thatcher and the American President, Ronald Reagan in the 1980's. The neoliberalist project is both economic

and political and focuses on free market policies, i.e. growth of international trade, free flow of capital, deregulation of markets, reduction in taxes and public spending, increase in privatisation and a flexible labour market. Most countries worldwide have adopted these economic policies and although new ideas of change started to emerge after the last financial crisis in 2007-2008, the neoliberalist ideas have remained largely intact (Peet & Hartwick, 2015; Hopper, 2012).

The role of the state

When discussing development and societal change it is necessary to briefly address the role of the state as it can be argued that the state is the main change agent, implementor and guarantor for securing development that benefits all citizens of the nation. The state is in this context understood to be the entity that has the legitimacy and power to influence activities such as public service, distribution of income, controlling flow of money and investment, as well as the work force (Anter, 2014; Levi-faur,1997). The state can also enter into agreements with other states if global initiatives are needed. The impact of the state promoting the neoliberalist development trajectory has been profound mainly due to the belief that neoliberalism has a positive and qualitative impact on humanity in general. The impetus of the Western world to nudge developing countries to follow the same path has been successful. Today most countries globally adhere to the neoliberalist growth paradigm, supported by the large international economic institutions, such as the OECD, World Bank and the World Economic Forum.

The adverse impacts of the growth paradigm, leading to greater inequality, increasing environmental degradation and threats to the planetary boundaries as mentioned at the start of this chapter, began to have a marked effect in the nineties. Hence the UN launch of the sustainable development theory and subsequent reporting on the increasing negative impacts.

There was no time issue as such in 1987 as symptoms of global warming and subsequent climate change had not as yet been fully understood and experienced in the mainstream, and as the symptoms were not regarded as sufficiently grounded in science. The urgency to have to *do something now* did not have much impact on people in general until the beginning of the 21st century (Hildebrandt (ed.), 2016).

The adverse effects

The IPCC assessments as well as special climate change reports published by the UN since 1990 (UN, 2019) have been widely publicised, announcing increasing scientific evidence that climate change is human induced. The 4th Assessment Report (UN, 2007) explains the way that climate change relates to job creation, health, innovation, technological development, access to energy and alleviation of poverty. At that time impacts of climate change started to be felt around the world through extreme storms, flooding, droughts, deforestation and intense forest fires. Activities were initiated to address the challenges already in 1992, globally, nationally and locally. The latest assessment report (UN, 2019) now stresses the urgency of time.

The sustainability field of knowledge has a broad epistemological base and draws together academics from a wide range of disciplines. The 20th and 21st centuries have seen researchers, writers and pioneers in all areas of society, from academia, business, civil society to politics examine the escalating negative consequences of economic and industrial development. This to such a degree that the present period has been called the age of the Anthropocene (Crutzen & Stoermer, 1980-2000).

Many early 20th century authors including Aldous Huxley, Rachel Carson and James Lovelock as well as increasing amounts of publicised research alerted our societies to the fact that the negative consequences of development could pose a danger to humanity, leading to the UN taking action starting with the Stockholm Conference in 1972 as previously mentioned. Other authors and visionaries continued the discourse. Al Gore described and demonstrated graphically both in his book, in his lectures as well as in the film "An Inconvenient Truth" (2006), how the exponential increase in the use of non-renewable resources and energy matched the equally exponential consumption and CO_2 emissions on a planetary scale. The ongoing publication of the IPCC reports from 1990-2019 documented the evolving impacts of the warming of the air and seas. The EEA's (European Environmental Agency) latest 5-year report of the state of the environment confirmed this (EEA, 2018). There is a decrease in non-renewable natural resources that together with climate change are reducing the quality of life for 80% of the world's population. This is most visible in the undeveloped part of the world in terms of hunger, poverty, disease, malnutrition, poor living conditions, gender problems, unrest and civil wars.

Climate change generates extreme weather patterns. This reduces biodiversity, quality of soil and increases desertification, all of which affect communities relying on agriculture and local food production for their livelihoods. It has been estimated by the IPCC and EEA that an increase in temperature of a maximum of 1.5 degrees Celsius can be carried by the earth's systems without damaging the natural habitat and changing climate systems. The most recent estimate, however, points to a 3 to 5 degrees Celsius rise in temperatures from the middle of the 21st century presenting a more problematic outlook (Reuters, 2018; Rich, 2019).

At a conference briefing in Copenhagen, in the spring of 2010 before COP16 in Mexico, both Connie Hedegaard, the EU commissioner on climate change and Jacqueline McGlade, the then Director of the EEA (European Environment Agency) warned of climate change occurring at our doorstep. Jacqueline McGlade considered Europe as a metaphor or a microcosm of the world's changes as she predicted a Europe with areas of extreme draught and desertification, other areas with extreme flooding and marked differences between North and South. It is estimated that approx. 70 million people (UNHCR, 2018) are currently migrating or fleeing from wars, civil unrest, droughts and floods. According to research predictions the stream of refugees will continue for many years to come as people's livelihoods are undermined and eroded (New Scientist, 2015).

2.3.2 Sustainability - a radical and necessary change

Is sustainability as it was defined in the Brundtland Report implementable given the strength of reigning economic paradigm? Or should it be regarded as a long-term theoretical and utopian vision for a better society as the one described in Plato's "The Republic" around 380 BC. (Butler-Bowdon, 2012)? The Republic promoted a different and radical worldview to that of existing beliefs. It addressed societal problems of that time and advocated new ideas for systems change in particularly the order and character of the "just" state and the "just" man (Butler-Bowdon, 2012, p.10). Plato's Republic is regarded as one of the most influential works of philosophy and political theory. Sustainability promotes similarly a different and radical worldview with an ethical core that requires systems change. Both constructs are rooted in social, ethical and moral principles.

In its essence the concept of sustainability is intended to be both holistic and inclusive. As Blewitt writes in his introduction to his book "Understanding Sustainable Development" (2008, p.1): "Sustainable development requires an understanding of the natural world and the human as being not so much 'connected' as one and the same".....and he writes further: "It [sustainability] requires a holistic way of looking at the world and human life". The dominant social paradigm (DSP) is based on an atomistic worldview that promotes fragmentation (Goodwin, 2007; Lovelock, 2000) and does not regard the world and human life as "one and the same". DSP encompasses the view that material progress is the ultimate goal and that man is separate from and greater than nature. Holism is rarely seen as part of the decision-making process, especially at high levels of influence. The gap between theory of sustainability and practice of sustainability is therefore experienced as being difficult if not impossible to bridge. The business industry for example is regarded as a powerful driver for sustainable development (WBCSD, 2019). The challenge is that even if some corporations incorporate the social, economic and environmental aspects as an integrated part of their business model making a profit is still their main focus (Raworth, 2017). However, corporations are now beginning to understand that without a sustainable world, there will be less profit to be made and that to grow and maintain the market share due regard to environmental and social issues must be taken into account. For most actors whether a corporation or a SME this shift to sustainable development is challenging and burdensome. However, more and more businesses have started to see earning potential in sustainable development and are currently keen to engage with the 17 Goals (UN Global Compact, 2019).

To understand the deeper issues related to sustainability and sustainable development it is important first to address the meaning of the two concepts.

2.4 DEFINITION OF SUSTAINABILITY

The word sustainability originates from the Latin sustinere. Sus = up, tenere = to hold. Sustainability can be explained or defined as the ability *to sustain, to endure, to maintain* (Seaton, Simpson and Davidson, 1990). The word has many definitions, depending on the context in which it is seen. All, however, derive from what is now accepted as the classic definition, the Brundtland definition.

2.4.1 The Brundtland definition

The first official use of *sustainability* to describe the context and link between environmental, economic and social issues, as we understand it today, was the Brundtland Report: "Our Common Future", published in 1987. The Brundtland Report was the result of the work of the Brundtland Commission, originally called the World Commission on Environment and Development (WCED), set up by the UN General Assembly in 1983. The commission was set up to address growing concerns "about the accelerating deterioration of the human environment and natural resources" (Oxford English Dictionary,1987) and the related negative impacts on economic and social development.

The commission established that environmental problems were global in nature and suggested it was in the common interest of all nations to establish policies for sustainable development (Kibert et al, 2012; Blewitt, 2008; Kirkby, O'Keefe and Timberlake, 1995). The Brundtland Commission formed and defined the concept of sustainable development to mean that economic as well as social development was necessary to secure a healthy and productive life for people. But it had to be a development that did not compromise the ability for future generations to have healthy and productive lives. The Brundtland concept of sustainable development thus addressed and included four important elements:

- Human-related issues including basic needs (food, water, housing, education, health).
- Social and ethical issues relating to life quality and dignity.
- The concept of limitation. There is a limit to non-renewable resources and the present generation must limit the use of these to make sure that there are sufficient resources for future generations.
- The concept of "natural resources being vital to sustain life" (WCED, 1987).

The two pillars that underpin the sustainability definition are therefore *needs* and *limits*. There are needs to be met globally especially relating to the poorest continents and there are limits to natural resources. The essence of sustainability thus is an ethical issue: to secure the wellbeing of all people on the planet by meeting the needs of everyone and doing this within the resource limits available.

For the first time it was publicly announced that men and women should live in balance with nature, so that future generations could have the same opportunities and possibilities to live the lives as people do today. The core of sustainability is thus balance. Balance between the material and other demands that humans make on the earth, and the earth's carrying capacity to sustain such demands. To achieve this balance all above factors must be taken into consideration. The underlying unique value contained in the concept is the ethical element. This becomes apparent in the context of environmental issues, social issues, economic as well as political issues due to the moral values that underpin every activity related to sustainability (Kibert et al, 2012). The Brundtland definition has within it a clue to why implementation of sustainability has proven to be challenging. The construct is multi-facetted, multi-dimensional, cross-disciplinary and multi-cultural. It is holistic and ethical in its essence and advocates a framework for a different paradigm to the one we have today (Blewitt, 2008; Caradonna, 2014).

Sustainability requires that we change the economic paradigm, the societal infrastructure and our lives, no less. It is in this context where elements parallel to utopia can be found, as Chapter 3 will explore. It can be argued that some indication of the probability and perspective of realising the goals may be found looking back in history to similar turning points and paradigm shifts. There are many examples of failures to change direction. Diamond's book "Collapse: How Societies Choose to Fail or Succeed" (2011) as well as his subsequent book "The World Until Yesterday: What Can We Learn from Traditional Societies?" (2012) show examples of how and why societies rise and fall. Diamond maintains that many advanced societies have failed, when their growth and development outgrew the resources available. The same can be said of the growth paradigm today that has continued this trajectory for the past two centuries. If Diamond is right humanity is currently on a decline, growth will cease, and societies will disappear. Lovelock (2010) supports this in his book "The Vanishing Face of Gaia" where he predicts that only a small percentage of people will be left to inhabit the earth by the end of the 21st century. This scenario is expanded by Wallace-Wells (2019, p.19) who predicts: "In fact, we are only just entering our brave new world, one that collapses below us as soon as we set foot on it".

This research cannot argue for the likely survival of humanity, nor can it argue for the opposite. What it seeks to address is that sustainability seems to be elusive as the

current impetus to bring about the transition is lacking. Instead of advocating a concept entailing unrealistic goals and measures a more relevant practical and down to earth approach could have been taken. It can additionally be argued that human psychology plays a major part i.e. the will to do what has to be done. If there is no will and there is a persistent adherence to status quo nothing will change. This aspect is touched upon by many authors and researchers i.e. Brannen (2017); Lynas (2008); Ghosh (2016); Wallace-Wells (2019).

2.4.2 Sustainability, ecology and environmentalism

Sustainability should not be confused with the concepts of environmentalism or ecology, even if the fields are interrelated. There has been lack of clarity between the meaning of *sustainability* as opposed to *environmentalism* or compared with *ecology*. Many of the authors reviewed have mixed the three concepts, making a complex field even more complex. Marius de Geus (1999) uses the words "Ecology" and "Sustainability" on the title page of his book, "Ecological Utopias: Envisioning the Sustainable Society". The author compares the ecological utopia to the sustainable society. He questions the impact of the ecotopian idea in his reflections on sustainability and discusses ecology in a similar way to J.C. Hallman (2010) discussing sustainability in the book "In Utopia" as though the two concepts were interchangeable.

The definitions of the three concepts are easily accessible and are fairly clear. The dictionaries Collins (2012) and The Concise Oxford Dictionary (1982) define the concepts in the following way:

- *Ecology* is a scientific or biological study of the interrelationship of living organisms between themselves and with their environments. Ecological is understood to mean beneficial to or not harmful to the environment.
- *Environmentalism* is described as a theory that views the environment as the most important or primary factor in human development and is concerned with the protection or quality of nature. Environmentalism is also described as the process of protecting the ecological balance.
- *Sustainability* is the capacity to endure and to sustain life. It is understood to be able to maintain society at a balanced level without exhausting natural resources or damaging the environment.

The three concepts have the environment as a commonality and as an essential component of their spectrum. Where ecology focuses on the natural systems and their interrelationship, environmentalism deals with the protection of the natural habitat as it is seen as being key to human development. Sustainability includes the other two concepts and encompasses both the interrelationship of the natural systems as well as the protection of it. The concept includes additional dimensions apart from the environmental and is thereby more encompassing than environmentalism and ecology. Sustainability can be seen to be the umbrella, the overall concept that encompasses the other two. Therein, it can be argued, lies its uniqueness and complexity.

The above may explain why phrases like *ecologically sustainable* and *environmentally sustainable* are used colloquially. It may be that the mixing of the terms can either be attributed to authors not knowing the different definitions or that their contexts and viewpoints have a leaning towards the environmental or ecological aspects of sustainability and should be seen from that perspective. However, mixing the words does open up for some confusion and lack of clarity that can be turned into an argument against sustainability (Klein, 2014).

2.4.3 Sustainable development versus sustainability

There has also been confusion around the difference between the term *sustainable development* and *sustainability*. The two phrases are often mixed. Wackernagel, Hanscom & Lin (2017) state in their paper that "the world's official commitment to everyone's wellbeing" is called sustainable development whilst "the need to operate within the planet's ecological limits" is sustainability. Caradonna (2014) states that when the word sustainable entered into the English language in 1965 it was attached to the word *growth*, which denoted a process, a movement and an expansion towards a steady state. In this context the author pointed to the contradiction between sustainable growth and a state of sustainability.

The two terms can simply signify two different states. Development is a dynamic movement towards something that has not been achieved as yet – a continuous process, hence the term *sustainable development*. The intention of the UN promoting sustainable development was as a development process to be undertaken by the nations of the world, led by the Western countries to move towards a global state of sustainability. Sustainability is an achieved state. Sustainable development is a

trajectory towards a steady state of sustainability. The focus of the thesis is to ascertain whether sustainable development can achieve a state of sustainability. It can be argued that the overarching issue when discussing sustainable development versus sustainability is the predicament that sustainable development is sought implemented as a reformist development theory when sustainability calls for a paradigm shift.

2.5 SUSTAINABLE DEVELOPMENT

"*Humanity has the ability to make development sustainable to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs*" *- WCED, 1987.*

The concept of sustainable development is not new. It was first written about in 1980 by the World Conservation Strategy (WCS), which was set up by the IUCN (International Union for Conservation of Nature) to find practical and rational solutions to environmental and developmental challenges. IUCN is the world's oldest and largest environmental organization, focusing on conservation at a global level (Kirby et al,1995).

The definition of sustainable development is: "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (UN, 2015). Sustainable development is therefore a process of developing the ability of humanity to live and work within the carrying capacity of the natural habitat. It is about balancing the social, economic, and environmental aspects of society (Caradonna, 2014).

With the end of World War II, a new "era of development" started, launched by the new American President Harry Truman in 1949. He said: "We must embark on a bold new programme for making the benefits of our scientific advances and industrial progress for the improvement and growth of underdeveloped areas. The old imperialism - exploitation for foreign profit - has no place in our plans. What we envisage is a program of development based on the concepts of fair dealing" (Esteva, 1992, p.6).

Another significant word introduced by Truman was "underdeveloped", which has become part of the development discourse since then. It can be argued that there are both similarities and differences between Truman's development goals and sustainable development. "Fair dealing" and "improvement and growth in the underdeveloped" countries are similar. The significant difference is the environmental factor as it is an integrated part of sustainable development. The difference also includes the interrelatedness between the environmental, economic and social aspects of sustainable development. Sachs and the contributors to his book "The Development Dictionary" (1991) highlight the shortcomings of the traditional development goals and processes that resulted in undermining the natural resource base. Truman's development goals increased inequality rather than the opposite and "exploitation for profit" continued. There has been much published evidence from a wide variety of sources to support this point over many decades for example from documentation by UNICEF (1994), UNDP (1996) and UN (2007). Sustainable development was created and launched to replace the traditional development model due to the latter's negative impact on our societies. As such sustainable development can be regarded as a political construct for a more balanced future.

One of the three main factors of the interlinking aspects in sustainable development is the environmental factor, as natural resources and the natural habitat are considered essential in sustaining life itself. The recent model to achieve sustainable development, the 17 Sustainable Development Goals (UN, 2015), separates environmental initiatives from social and economic goals. It breaks up the combination of the three fields as a holistic, interlinked and interdependent model for sustainability (Section 2.9.4). The reason for this fragmentation in the 17 SDGs might be due to wanting to ease and simplify the issues of implementation, making each of the seventeen goals more accommodating, accessible and less challenging to address. Inherent in this lies the key contradiction and challenge of the 17 SDGs as they will only make sense in a sustainability context if all goals are met (UN, 2015).

2.6 THE BACKGROUND FOR SUSTAINABILITY

2.6.1 The crisis of development

Development in terms of pure economic growth has been the dominant aim by most countries during the past century (Section 3.2). Even though this has brought wealth to

mainly Western populations it has had a negative impact on many aspects of peoples' livelihoods, especially in the non-Western world (Sachs (ed.) 1992). These negative impacts underpin the background for the emergence of sustainability and sustainable development. It is the response and remedy to what Kirkby et al (1995) address as the three crises: the crisis of development, the crisis of environment and the crisis of security. Kirkby et al as well as most other researchers, authors and scientists, reviewed in this research argue that political as well as economic changes worldwide have caused the crises affecting especially the poor continents.

The main victim has been the African continent, and this has according to Kirby (1995) contributed to the formation of an elite that owns most of the land and resources. This elite is seen to have undermined the self-sufficiency of local communities and has created an underclass of people who are poor and are struggling to survive. It includes women in particular whose working and living conditions are poor, even though they are often both the breadwinners and homemakers as described in the report "Limits to Growth" by The Club of Rome, a global think tank set up in 1972. The IPCC report (2018) states that without equality a sustainable state cannot be reached. The importance of girls getting an appropriate education cannot be underestimated. The findings that educated women can reduce overpopulation is a well-communicated fact.

According to Blewitt (2008) the factors of the development crisis were emphasized by excessive lifestyles of the rich countries giving cause for a growing concern. This concern relates to the undermining of the ecological balance in the natural habitat by over-consumption and excessive resource use as well as increasing global inequity and inequality, all of which are addressed in most models for sustainable development and has a specific focus in the 17SDGs.

2.6.2 The environmental crisis

The environmental problems included in the Limits to Growth report from 1972 were:

- Degradation of the environment and natural habitat.
- Dwindling stock of mineral and non-renewable resources.
- Loss of biodiversity.
- Resource degradation.
- Greenhouse gas emissions.
- Desertification.

- Extreme weather conditions, including flooding, caused by climate change.
- Toxic and overfished seas (Kirby *et al*,1995).

All assessment reports from the IPCC and the Stern Review on the Economics of Climate Change (2005) have supported these views. The reports have underlined and stressed the human factor in global warming leading to climate change, believed by many scientists to become extreme already from the middle of this century. Leading up to the publication of these reports, many discussions and debates have flourished, relating to whether global warming is caused by human impact or not (Dyer, 2011). However, there is now sufficient evidence to alleviate any doubt that global warming is human induced.

Apart from the environmental as well as social crises that globalization and the exponential economic growth brought about, another problem became apparent. This related to the continuing increase in demand on materials and fossil fuels generated from non-renewable sources both in the developed countries but also increasingly in developing countries. A third crisis followed in the wake of this. It is outlined below and is a crisis that will deepen in years to come as more than three billion people from the developing continents are estimated to receive middle class incomes by 2050 (Kharas, 2017). The demand on resources will therefore intensify over the next decades.

2.6.3 The crisis of global security

The third factor is the crisis of global security. Wars and civil unrest have reigned in Africa and the Middle East since the 2nd World War, mainly due to the fight for control of non-renewable resources including minerals and oil. In some countries wars and civil unrest have become part of daily life, killing people, destroying livelihoods, cities, towns, villages, leaving devastation in their wake. The latter years of extreme weather is an example as is the increase in numbers of refugees and immigrants.

"*Climate triggered the crisis in Syria, so the world must brace itself for more climate refugees in the years to come*"
- MCKenzie, 2015.

Dyer (2010) predicted a future ruled by the politics and wars for survival, as food stocks dwindled with fresh-water shortages and loss of arable land on the increase,

deepened by increasing floods and rising sea-levels. Currently more than 70 million people (UNHCR, 2018) are migrating from war-ridden areas, climate change impacts, increasing severe weather impacts and volatile economies. It is argued in the IPCC reports that the refugee and migrant crises will deepen unless sustainable development with a strong focus on social and human aspects is implemented across borders in a very short space of time. 10 years - till 2030 - is currently the estimated timespan for change to mitigate the effects of global warming, if the warming of the planet is to remain below 2 degrees centigrade as earlier mentioned. The world will otherwise become a victim of its own growth-based development agenda at a much larger scale than most people can imagine. The collapse in this context will affect societies worldwide and not be limited to some specific areas only (IPCC, 2018; Wallace-Wills, 2019; Brannen, 2017).

The above crises were according to Kirby *et al* (1995) and Sachs (1992) the main reasons for the emergence of sustainability as a vision for a new societal construct. It is turning the vision into practice that can make or break the realization of such ideals. Implementation of new ideas is a challenging process and does not always lead to success. The section below explores the field of implementation of sustainability and outlines some of the problems that have created barriers for the success of many sustainable development initiatives.

2.7 IMPLEMENTING SUSTAINABILITY

"*Sustainability, or the ability to sustain ourselves and the biosphere, is humankind's greatest challenge and one that we must face using creativity, imagination and understanding*"- *ICIS, 2002.*

In the second half of the nineties, the world was waking up to the problems and challenges as described in the first part of this chapter. The sustainability discourse became an item on most corporate, business and political agendas. Many organisations, research institutions, NGOs and pioneering individuals worldwide worked with the concept and formed sets of principles that could be used for sustainable development activities. Many worked on models, methods, measurements and indicators with which to start the process as well as measure and monitor progress. Some of these are discussed in the following (Meadows *et al,* 2004).

2.7.1 Global initiatives

Earth Summit - Rio 1992

The birth of sustainability as a publicly acknowledged concept for development worldwide started with the Earth Summit. At the United Nations Conference on Environment and Development (UNCED) in 1992, 172 countries signed The Rio Declaration on Environment and Development, which covered 40 principles dealing with a variety of environmental and social issues. Other outcomes from the Summit included the Framework Convention on Climatic Change, Principles of Forest Management, the Convention on Biological Diversity and Agenda 21. Agenda 21 was a global non-binding plan for action that member countries should initiate. Many conferences and congresses were to follow on from the Earth Summit. There have bi-annual UN congresses, the COPs, where governments have gathered to be informed of the latest developments, specifically with regard to climate change and with the aim to urge governments to take action.

Earth Summit: Rio + 10 - 2002, South Africa

Ten years on from the Earth Summit in Brazil, Rio+10 was organised in Johannesburg in South Africa. It was a follow on from the summit in 1992 and one of the outcomes was the Johannesburg Declaration on Sustainable Development. It was an expansion on the declarations from 1972 and 1992 emphasizing threats to sustainable development and encouraging multilateralism and partnerships. The declaration was not legally binding and more general in terms than the declaration of 1992. One significant result from the summit was the interlinking of the three factors of environmental, economic and social perspectives that has become associated with sustainable development (Farley and Smith, 2014).

Earth Summit: Rio + 20 - 2012, Brazil

The Rio+20 Summit in Brazil 2012 was a key global event where around 180 world leaders and other negotiators gathered with more than 50.000 delegates present. The official themes of Rio+20 were to promote “a green economy in the context of sustainable development and poverty eradication” as well as the “institutional framework for sustainable development” (UN, 1992). One of the aims of the event was to assess the progress achieved since the first summit in 1992. Furthermore, to discuss the opportunities for advancement and to examine how Rio+20 could build on the opportunities and challenges to create a more ambitious action plan. The world

leaders signed a 283-point declaration, called "The Future We Want", aimed at steering the world towards sustainable development. Decision 56 in the declaration, for example, sets out guidelines for "green economy policies" that should contribute to eradicating poverty, sustain economic growth, ensure social inclusion and employment as well as improving wellbeing. This to be done within the carrying capacity of the planet (UN, 2020). It can be argued that declarations are relatively easily drawn up and signed but more difficult to follow up on.

In terms of assessing the progress made over the 20-year period between 1992 and 2012 both positive as well as negative feedback was publicised regarding the outcome. The criticism included the fact that the declaration 20 years on lacked measurable commitments, specific goals and timelines for further progress. No legally binding commitment was made - a similar situation to the declaration in 1992. The positive feedback given by politicians and the business sector was that the declaration ensured a continuation of the process towards sustainable development. Governments and organisations speaking for the developing countries that suffered mostly from the negative impacts were disappointed and frustrated (Caradonna, 2014). It seems that throughout the period from 1992 till today governments have been inspired or persuaded to sign agreements and declarations at the congresses but have failed to fulfil their promises.

The Kyoto Protocol

"*The Kyoto Protocol was the first critical step – today we must take further and more far reaching action towards a truly sustainable future for seven billion rising to over nine billion, people*" - *UNFCCC, 2015.*

Another significant initiative was the Kyoto agreement in 1997. It was an initiative generated in the wake of the 1992 summit. The Kyoto Protocol was an international treaty which extended the UN Framework Convention on Climate Change (UNFCCC) that committed countries to reduce greenhouse gas (GHG) emissions. Countries that signed the agreement committed to reduce emissions by 5% on 1990 levels by 2012. As the developed countries were recognized as being responsible for the majority of emissions, it was thought that they should bear the heavier burden of the necessary reduction. This was also due to the fact that developing countries would not be able to afford switching to cleaner fuels or renewable energy. It was the intention that with time the poorer countries would be included into the protocol as cleaner technologies

would be integrated and made available to them at lower costs by the more advanced countries (Klein, 2014; Caradonna, 2014).

The framework for the implementation was agreed in 1997 and the Kyoto Protocol was activated in February 2005 with the first commitment period set to start in 2008 to end in 2012. However, the Kyoto Protocol was not put into effect. Despite several conferences and meetings little progress was made as many faulted the initiative. The clearest way to interpret the results after the protocol had been in effect for 10 years was through the comments from Christiana Figueres, the past Executive Secretary of the UNFCCC. She stated: “Despite our best efforts, greenhouse gases continue to rise, threatening sustainable development and putting millions if not billions of people at risk over the coming decades” (UNFCCC, 2015). This sentiment was indicative of the results of over 25 years’ work on global initiatives as a whole. It added weight to the argument that sustainability may take longer to become an integrated part of our societies than was expected or hoped (Klein, 2014).

WBCSD: World Business Council for Sustainable development

"*Sustainability is enlightened self-interest*" - *Guterres, 2019.*

Sustainability was from the start an idea both liked and disliked by the business community. Disliked because it meant that businesses were required to think further than profit alone. Liked, because the change in consumer patterns towards more ethical purchasing patterns began to be seen as a business opportunity (Willard, 2012).

The World Business Council for Sustainable Development (WBCSD) was founded in 1992 at the Earth Summit with the aim to make sure that business played a key role in furthering sustainable development. It was also set up to ensure that business had a voice and was heard in the sustainability discourse. The WBCSD has since then played a major role in promoting sustainable development. The Council believed that it would protect the bottom line for businesses in the long run, sustain the purchasing power of the consumer and maintain high awareness of the market and its trends. Overall developing the ability to make sustainability profitable. Business has over time had to accept that sustainability is a factor to be included in future strategies just as the Novozymes case illustrates in Chapter 5.

2.7.2 Recent initiatives

Two significant events took place in 2015: United Nations Sustainable Development Summit in September in New York and COP 21 in December in Paris. The first gathering was to agree on seventeen goals at the UN General Assembly. At the second event, the UN Climate Conference, The Paris Agreement was signed by the world leaders who pledged to reduce CO_2 emissions to ensure that global warming remains below 2 degrees Celsius. The agreement included a commitment by the major emitting countries to first of all cut their CO_2 levels as well as assist developing countries in their adaptation and mitigation initiatives (UNFCCC, 2019).

The 17 Sustainable Development Goals (SDG) included 169 sub goals and 239 indicators "to end poverty, protect the planet, and ensure prosperity for all as part of a new sustainable development agenda". The 17 SDGs were an extension and an expansion of the Millennium Goals. Specific targets were set to be achieved over the next 15 years until 2030. One of the new and different elements compared with the declarations of 1992 was the fact that the SDG's were developed by a diverse group of actors including governments, the business sector and civil society. The UN stated that to achieve the targets in the required timespan the involvement of all sectors of society should work together, and thus Goal nr. 17 advocating partnerships became one of the key focus points of the model (UN, 2015).

The Development Goals were an extrapolation of the Millennium Development Goals. These were established at the Millennium Summit in 2000 and included eight socially orientated targets including anti-poverty targets to be accomplished by 2015. Progress according to recent statistics were made towards achieving the goals. For example, it is stated in the IPCC report (2018) and in Rosling's book, "Factfulness" (2018) that global poverty is on the decrease and has been for some time, especially in Asia. Nearly all children (95%) both boys and girls are now attending primary school; the number of child deaths is decreasing; several diseases are being treated (AIDS, malaria and tuberculosis) with positive results. One of the reasons for reduced poverty was said to be the growth of countries like China, Brazil and other developing countries. What is not known is whether increased global warming and climate change will offset this progress. It can be argued that the SDGs are as broad and non-specific as the declaration the UN launched in 1992. A question might be: will the new SDG model succeed in meeting the far-reaching goals that are required to turn the world

from being unsustainable to sustainable? There is a stronger impetus today in terms of scientific evidence of global warming than there was in 1992. There is also increased evidence of negative impacts of extreme weather affecting people in both poor and rich countries. As is the evidence of greater inequality and people have started to react with bottom-up activism, for example the recent climate marches by schoolchildren, led by Swedish activist Greta Thunberg, the Extinction Rebellion movement in the UK and other climate demonstrations around the world.

Furthermore, according to researchers as previously mentioned there remains an estimated timeframe of approx. 10-20 years to reduce CO_2 emissions sufficiently to keep within the desired limits for global warming. Governments, businesses and civil society are more aware of the perils of failing today than earlier. There seems to be a growing willingness and determination to change due to the increased stress on the planetary boundaries, and the general public is starting to show their frustration with politicians not taking action. This has not been so before. The scientific case for a trajectory towards a 3-5 degrees Celsius is having an effect on decision-makers. Businesses are starting to see an opportunity in the shift from unsustainable to sustainable development (Lombrana, 2019). It is a well-known fact that the election in Denmark, for example, in the spring of 2019 had climate change at the top of the political manifestos.

The following section will examine the critical attempts of implementation initiatives developed during the last 3 decades and show why the path to achieving sustainability has been seen to be difficult. It is not the aim of the literature review to list a perfect assembly of all models, methods, indicators and measurements, but to describe the most well-known and tried examples.

2.8 PRINCIPLES FOR SUSTAINABILITY

2.8.1 The context

The Brundtland definition of sustainability and the subsequent Rio Declaration intended to guide countries towards sustainable development. Unfortunately, there were no explicit guidelines or tools, established by the UN with regard to the implementation of the ideas and principles – only non-binding declarations. No how? When? Where? Or what? Apart from the initiatives deriving from the summits. The concept and

application processes were left open in terms of interpretation and implementation and only picked up by those who were sufficiently aware of the possible perils of the continuing non-sustainable behaviour. This led to confusion and vagueness and laid the foundation for barriers to change.

After the launch of initiatives in 1992, many sectors in society began embarking on working with and around sustainability, ranging from government initiatives, community networks to individual people who started to initiate change. To begin with pioneers and passionate believers led the drive in a bottom-up movement. The Samsø initiative (Chapter 5) was headed by a local pioneer. Another example was the Transition Movement, initiated by Rob Hopkins in 2006 in Totnes, Devon (2008) which spread to many cities around the world. Many pioneers and initiators could be mentioned spearheading practical initiatives to further sustainability. Individuals established organisations, campaigns, events and whole movements and worked tirelessly for the sustainability cause. They inspired and led organisations and businesses mainly in the private sector in attempts to engage in sustainable development initiatives.

Models, indicators, certifications, monitors and measurements flourished without coherence or universally agreed frameworks to work within (Farley & Smith, 2014). Multiple sets of principles of sustainability were thus created by public and private institutions, the business sector and civil society. It can be argued that this aspect in itself may have created barriers to sustainable development due to lack of cohesion. The title of Farley and Smith's book (2014) is: "Sustainability, if it's everything, is it nothing?" This sentiment is shared by many in the mainstream sectors. However, it is not a sentiment this research supports as it seeks to demonstrate that even if sustainability is "everything" it is not "nothing". Sustainability indicates a radical change from status quo and time may be needed for the transition from a non-sustainable state to a sustainable state to take place.

In researching the principles, it became clear that the focus of each set of principles appeared to be formed according to the nature of the context of the source creating the principles. Different actors developed their particular set of sustainability principles. There were many variations on the theme of what sustainability or sustainable development was supposed to imply. In this context the research supports Farley and Smith (2014) in their view that the sustainability concept has been used and abused to

a great degree and that decision makers have not managed (or wanted) to coherently impact the infrastructure and systems in our societies.

The examples of principles below demonstrate the variation in specificity as some are more detailed than others. Only a few are included in this thesis to demonstrate the versatility and width of the fields covered. A total of 105 principles were examined, created by a wide variety of public and private organisations between 1991-2015 including WWF, The Worldwatch Institute, NRTEE (National Round Table on the Environment and Economy, UK), International NGO Forum (UN), APEC Ministers responsible for the Environment (Asia), Centre for Policy Alternatives (US), United Kingdom Secretaries of State for the Environment (UK) as well as a number of research centres and private companies. The principles inherently imply that the task of implementation not only involves a top-down approach through legislation but involves all of society. The principles recorded in this section include one set of principles launched by a government body, another advocates a community approach, one is organisational and is a guide to its leaders and the final set is addressing the built environment, created by an architectural firm.

2.8.2 Principles

The Defra principles - a government approach

The Defra principles of 2014 were the UK government's response to the increasing environmental and social crisis. The principles included the aims of:

- Living within the environmental limit.
- Ensuring a strong, healthy and just society. -
- Meeting the diverse needs of all people.
- Achieving a sustainable economy.
- Using sound science responsibly.
- Promoting good governance.

The Defra principles stressed the importance of a strong sustainable economy, even though it was not clear what was meant by *sustainable*. A sustainable economy can mean different things i.e. capitalism is considered by some to be sustainable, meaning *ongoing or continuing*. It also appeared from reading the principles and the supporting text, that economy, governance and science were the three levers deemed most important in achieving sustainable development by the then UK coalition government. The principles were broad and vague and therefore difficult to implement (Defra, 2014).

Leadership principles – an organisational approach

Department of Agriculture of the US government launched a set of Leadership for Sustainability Principles for their employees in 2010. These included:

- Leading by example even if this requires a new direction.
- Using the appropriate and relevant indicators and measurements of progress available.
- Looking at consumption in an interconnected and integrated way.
- Promoting innovation and resilience.
- Looking for effective *leverage points* to affect change.
- Using biomimicry as a framework for sustainability.
- Working within existing contexts, co-operating and collaborating.
- Implementing sustainability as a lifelong process.
- Acknowledging that both failures and successes are part of the process. developing the ability to embrace change and chaos (Worldwatch, 2010).

The principles stressed the individual leader's approach to the sustainability process, advocating the development of specific personal attitudes both in the internal working environment as well as in external relations. Compared with the Defra Principles which took a national view of sustainability, the above was a more active to-do list for the individual taking a leadership role, and for groups of people in business or organizations. The set included elements of value and attitude approaches.
It represented an example of a human orientated call for action unlike the vague and broad Defra Principles. This set of principles was unusual among the examined selection due to its individual approach. Most principles examined were a derivative of the first example and were top-down-orientated, broader, more generalist and open to interpretation and hence more difficult to take action on.

One Planet Living - a community approach

This initiative stems from 2008. It included a set of ten principles for sustainability and was a global initiative developed in a partnership between Bioregional, an enterprise set up by the Bioregional Development Group, and WWF (World Wildlife Fund).
The principles outlined the following aims:

- Zero carbon emissions.
- Zero waste streams.
- Sustainable transportation.

- Local and sustainable materials usage.
- Local and sustainable food production.
- Sustainable water management.
- Land-use and wild-life protection.
- Culture and community activities.
- Equity and local economy development.
- Health and happiness initiatives.

This set of principles was more environmentally and community focused than the previous examples, as both WWF and Bioregional were NGOs with the environment and nature conservation at the core of their work. The list directed the focus to specific areas for action. It was broad in its reach but did pinpoint specific areas in the sustainability agenda to take action on. The complexity of sustainability is clearly illustrated in these ten principles as they covered areas such as transportation, materials, food, water, wildlife, culture, community, culture, health and happiness (One Planet Living, 2014).

The Hannover Principles – the city environment

William McDonough, an architect/designer, and Michael Braungart, a chemist, developed the Hannover principles in 1992. The partners formed a company called Cradle-to-Cradle (Section 2.9.2) that became famous for its founding ideas of re-cycling and up-cycling models. The principles were a comprehensive set of guidelines relating to the design of buildings and their environment.

The principles include the following:

- Insist on the right of humanity and nature to co-exist in a healthy, supportive, diverse and sustainable condition.
- Recognize interdependence.
- Respect relationships between spirit and matter.
- Accept responsibility for the consequences of design decisions upon human well-being, the viability of natural systems and their right to co-exist.
- Create safe objects of long-term value.
- Eliminate the concept of waste.
- Rely on natural energy flows.
- Understand the limitations of design.

- Seek constant improvement by the sharing of knowledge (Blewitt, 2008, p.157; Kibert *et al*, 2012).

The Hannover Principles was the first set of principles to focus on design and architecture. They also included "spirit and matter" and can as such be regarded as having a more holistic approach than many of the other principles to sustainable development. Scientists, businesspeople and academics started in recent years to recognize the importance of the issues of spirituality, for example Anita Roddick (2001), Janine Benuys (1997), Gregg Braden (2014) amongst others. Spirituality is an integrated part of the holistic view of life. When included in the principles, the path towards sustainability becomes more focused on the individual way of life rather than on systems change. It is regarded as an important inclusion. The observations from the case study report indicate that to achieve positive results at a local level spirituality and matters of the soul are important for the individual as well as the communities (Sections 5.3 and 5.4).

2.8.3 Commonalities

A clear trend emerged from the examination of principles. Most consisted of around ten elements and were short and easily understood. Although described with different words and emphasis, they covered similar core aspects namely environment, waste, energy and social issues. Other elements referred back to their particular contexts. The sets of principles were variations on a theme. All appeared to link to the definition of sustainability, whether about development in general, policy development, recommendations for countries or states, for communities, societies and cities.
In addition, whether promoting *living sustainably* or *developing sustainably*, many common denominators existed that addressed nature, resources, waste, energy, reduction of CO_2 emissions, building resilience or taking personal as well as joint responsibility for the wellbeing of the planet. The core focus was similar but set in different contexts although universal and top-down principles were also developed, created by multinational organisations and research centres.
It can be argued from the current statistics on increasing CO_2 emissions that the work with principles and goals has not been effective as principles are guiding rather than binding. The effect of the work with sustainability principles has not been measured. There has been no evidence whether the principles examined were integrated successfully or not, or whether activities of the host body changed as a result. In the context of principles, it is worth noting that only one of the case studies,

Brahma Kumaris, had a set of principles (Section 5.4.3). The other two did not utilise principles in their work. Instead they had a vision, mission and goals combined with a number of values to help guide the processes.

2.9 MODELS AND METHODS

This section of the chapter deals with practical implementation processes and activities encompassing models, processes and methods. As with principles, many have been created over the past three decades. Most are research-based, some are practical constructs based on experiments. Some are aimed at governments and businesses, and others at organisations as well as civil society in order to engage in sustainable development activities.

Many models have seen the light of day since 1992 and new models are continually being added to the list. Among the most critical are: Corporate Social Responsibility (CSR), The Triple Bottom Line (TBL), The Natural Step (TNS), The Ecological Footprint, Cradle to Cradle (C2C), The Circular Economy and Permaculture. Recently the 17 SDGs have been added to this list. The variety of models has the same predicament as the sets of principles. Most models are anchored in the specific areas, that relate to the expertise, interest and field of work of the initiators. The models addressed in this thesis are regarded as some of the key examples of approaches to implementing sustainable development. They include some of the latest emerging scenarios and give an idea of the wide spectrum of concepts as well as the complexity that each carry within it.

It should be noted that the examples below are an indication of the multi-layered approaches they represent. They contribute to mapping the field of knowledge underpinning the research questions. The feedback from the application of the models indicates the types of issues that surround the enactment of sustainability principles and the positive as well as negative impact the models have had on the sustainable development process (Caradonna, 2016; Natrass and Altomare, 2001).

2.9.1 Business models

CSR

CSR, Corporate Social Responsibility, became a mainstream approach towards

the end of the 1960's and early 1970's. Its popularity grew in the 80's inspired by the work of R. Edward Freeman's book "Strategic Management: A Stakeholder Approach" (2010). CSR was adopted as a strategic tool to inspire and introduce the corporate world to social responsibility in the context of the crises of development and globalisation. CSR outlined methods on how corporations could embrace sustainability, the areas to focus on and the positive outcomes in terms of the business advantages that could be expected (Willard, 2012).

The nature and essence of corporations are about making and securing profits and dividends to their shareholders and to attract investment. CSR goes beyond that to also include both environmental and social aspects. The CSR model deals with corporate stakeholders instead of shareholders. Stakeholders include the internal as well as external bodies that corporations have dealings with i.e. employees/staff, shareholders, customers, suppliers, retailers as well as local organisations. The aims of CSR are for the corporation to take its stakeholders into consideration and take responsibility for creating a participatory and a respectful way of dealing with these. CSR advocates corporate environmental responsibility through paying attention to the environmental footprint, transportation, supplies, end of life of its products, recycling, waste handling as well as risk assessment (Henriques and Richardson (ed.), 2004). Many corporations and businesses adopted CSR, and most company websites included a page that described the company's CSR activities. On the negative side CSR activities have been called *greenwash*, which meant that CSR was an easy and non-committed way for a corporation to be *seen* to be engaging in sustainable development, when in fact very little in this regard was being done. Greenwash consisted of, in layman's terms, having a section on the company website outlining the company's environmental policy and activities that were rarely implemented. Unfortunately, this is still symptomatic of many companies' engagement with the sustainability agenda (Porritt, 2005). One might question whether the 17 SDGs will be used as a new way of greenwashing, as it is possible to declare focusing on one or more goals while avoiding others that are difficult to meet (Futerra, 2011).

As business and the reigning economic paradigm are regarded by researchers, writers and analysts to be at the core of the problems facing societies today, sustainable development requires a radical and revolutionary shift in the essence of doing business. (Hildebrandt (ed), 2016; Raworth, 2017) The desire of business to make

profit as well as working on social and environmental issues can, however, be seen as a contradiction (See Section 2.12.1 on barriers). This will be expanded upon in the section below which deals with the other universally adopted business model for sustainable development, the Triple Bottom Line.

Triple Bottom Line – the top-down model

A well-known and quoted model is the Triple Bottom Line. It is the most widely used of all models. It was mainly developed to deal with corporations but has been adopted as a model to drive the sustainability agenda mainstream. John Elkington coined the term the Triple Bottom Line (TBL) in 1994 inspired by the Rio Conference in 1992. TBL has also been referred to as PPP: People, Planet, Profit or EEE: Ethics, Ecology, Economy (Daly, 1996). Elkington described what was meant by TBL and talked about "the sustainable capitalism transition". He believed that businesses would be in the driving seat towards sustainable development ahead of governments and NGOs (Elkington, 1999). Reflecting on recent developments John Elkington might have been correct in his assumptions as the development of the 17 SDGs was undertaken by a diverse working group that included the business sector. The business industry did begin to see the benefits of sustainable development and was keen on taking a leadership role in driving the SDG's, as Case 3, Novozymes (Section 5.5) illustrates. Many corporations are now actively implementing sustainability aspects in their companies.

The Triple Bottom Line (TBL) is a model that deals with sustainable development where the profit (and loss), the people and planet accounts are in balance. Seven drivers and "seven sustainability revolutions", as they are called in Henriques and Richardson's book, "The Triple Bottom Line, does it all add up?" (2004, p.3) deal with markets, values, transparency, time, life-cycle technology, partnerships and CG, Corporate Governance. The TBL approach has over the years become a popular model for implementing sustainable development initiatives.

Sustainability is being included as part of the decision-making process and future strategy in many corporate companies today. Companies are increasingly aware that failure to do so may have a negative impact on their business activities and market share in the future (Hildebrandt (ed), 2016). The negative aspect is, as political activist Naomi Klein describes in her book: "This Changes Everything" (2014), the fact that business is in engaged in making money, first and foremost. Industry has a long history

of unsustainable behaviour attached to its activities. It can be argued that there is a reason why scepticism and the question whether business can be trusted *to do the right thing* still prevails, even if some of the major players are promoting sustainable development and are making money doing so. In addition, Klein (2014) claims that sustainable development is prevented by a powerful elite that benefits to an extreme degree from the unsustainable state and that power issues are major factors in slowing the drive for sustainability. Her belief is supported by many critics of the behaviour of the business industry. Standing (2016) for example, points to a number of powerful groups, consisting of economists, industrialists and other influential personalities. Included in these groups is the Mont Pelerin Society (MPS), a key influential factor in the development and spread of neo-liberalists ideas, the Bilderberg Group and the Heartland Institute, promoting "free market capitalism" (Standing, 2018, p. 248-249; Klein, 2014). Some of the elite include corporations such as BlackRock and the Carlyle Group as well as magnates such as Rupert Murdoch and the Koch brothers. The key problem with the elites is the power and influence they wield within governments worldwide. The barriers created by them to resist sustainable development must be regarded as significant and difficult to overcome, unless the elites, in time, will come to see sustainability as Guterres expressed it as "enlightened self-interest" (Section 2.7.2)
Illustration: https://www.researchgate.net/figure/Triple-Bottom-Line-Models-of-SD_fig1_307907991

2.9.2 Resource and waste models

C2C Model: waste = food

The Cradle-to-Cradle (C2C) model is a concept, that differs from those mentioned above as it focuses on waste and resources only. C2C advocates that waste is a resource to be treated with respect, to either be *upcycled* into new and better resources or broken down as biodegradable waste. Products and the man-made environments are designed with the two recycling streams in mind. The model was developed by William McDonough and Michael Braungart who co-authored the Hannover Principles (Section 2.8.2) that laid the foundation for their work, the Cradle-to-Cradle methodology. The C2C values include abundance, creativity, prosperity and change. The key message is that waste equals food, meaning that any kind of waste product is a resource to be used in production processes on par with virgin resources.

The two main elements in the C2C model consist of the biological as well as the technical/industrial/mineral metabolisms or cycles. As a metaphor for C2C the authors use the tree, where all waste, fallen fruit or leaves, is biodegradable and thus leaves no harmful residues in the soil that damage the tree, its ecosystems or surroundings. Instead the fallen fruit and leaves nourish and enrich the soil. The industrial metabolism or cycle includes up-cycling as opposed to down-cycling of waste materials. When waste materials i.e. paper, glass, plastics or metals have been recycled, they generally break down and become less valuable or useful in new production processes and have a relatively short lifespan. C2C advocates the use of design, materials, production and recycling processes that enhance the resources and can more easily enter into new production cycles. The C2C model is a focused and specific method to embrace resources and processes. It has been adopted by governments, regions, cities and a number of worldwide corporations such as Nike, Herman Miller and Interface as some of the most well-known, and is a recent favoured model by the business industry (McDonough & Braungart, 2002).
Illustration: https://epea.com/en/about-us/cradle-to-cradle.

The problem with C2C lies in the complexity in the breakdown, analysis and disassembly of waste in industrial production processes. The difficulty is in the development of non-toxic and new materials to enter the production stream that can be recycled and reused in new production lines or entered into landfill sites as biodegradable waste. The model does not advocate the concept of reduction in consumerism. Instead it promotes continuing production, waste and growth. This is in itself a contradiction to the classical sustainability measures, where there is a drive to reduce production, consumption, resource use and the generation of waste.
In addition, social and ethical aspects are absent from the construct.

Circular Economy

> "*A circular economy is one that is restorative and regenerative by design, and which aims to keep products, components and materials at their highest utility and value at all times, distinguishing between technical and biological cycles*" - *MacArthur, 2019.*

As an extension of the Cradle-to-Cradle model a new and currently popular business model has been adopted by businesses, regions, cities and even countries. It is called the Circular Economy model and is based on the C2C concept combined with what a

few decades ago were called *competence clusters*. One of the earliest examples of a competence cluster was a group of companies in the city of Kalundborg in Denmark (UNEP,1997). Six large companies created a cluster, utilising each other's waste products and feeding these into their own production streams. Waste heat from one company was used in the production process of another company, whose wastewater was cleaned and utilised by a third company, the waste product of which was reused in the production of road surfacing materials by a fourth company, creating a closed circular process or loop. These closed loop systems (called an industrial symbiosis) became one of the hallmarks of Circular Economy. Other key elements in the model are, as with C2C, the two waste cycles, the mineral-based and the biological cycles. The model requires that products and the built environment are designed in such a way that waste can be reused in new production cycles without losing value and quality or be designed with built-in biodegradability in mind (MacArthur, 2015).
Illustration. https://www.ellenmacarthurfoundation.org/circular-economy/concept/infographic

From a sustainability point of view the model lacks the social factor entirely. It is 100% technology and resource focused. The model does not suggest a change in the consumption patterns needed to maintain resource and planetary equilibrium. Neither does the model address other ways of doing business, for example renting, sharing, repairing, lending, exchanging or bartering.

Relating the models to the Brundtland definition C2C and Circular Economy only address part of the requirement for sustainability. They may be good at addressing resources in a lifecycle process but are neither good for the social nor transitional aspects of sustainability.

Most of the models above have been developed by and for the business sector. Business and the reigning economic paradigm are at the core of the problems facing societies today, and the business sector must be part of the solution (Raworth, 2017). A radical shift in the essence of doing business is required whether industrial, agricultural or cultural. Implementing the models described above is still ongoing. Some of the older models have been replaced, some are still in the process of development for example TBL and C2C and new models have been introduced i.e. Circular Economy and 17 SDGs. Corporate business is engaged in driving sustainable

development as it has become good business and is believed to secure markets in the future as well as attract investment. Raworth states in her book "Doughnut Economics: Seven Ways to Think Like a 21st-Century Economist" (2017) that the key challenge for governments as well as for the business sector is the traditional idea of "continued growth" and states that we should become "agnostic about growth, creating economies that enable us to thrive, whether or not they are growing" (2017, p.287).

There are a number of other models, that have been tried out and are not business-based. A well-known model is permaculture that focuses on the natural habitat.

2.9.3 Whole earth models

Permaculture – maintaining nature

The word permaculture first appeared in the mid-seventies, created by Bill Mollison (scientist and biologist) and David Holmgren (environmental designer). The permaculture model is essentially about ethics, based on a set of universal design principles that cover whole-systems and web-of-life thinking. It mimics the way nature creates patterns and interrelationships, building diversity, stability and resilience in doing so. It integrates several disciplines including biology, ecology, agriculture, gardening, architecture, technology as well as community building and is holistic in its essence. Experts on the topic claim that it is applicable to any system such as architecture, design, technology, economics, education and built environments, but is mainly applied to agriculture, food production, the natural environment. Permaculture has developed specific tools for people to engage in a variety of permaculture systems. The system is based on nature's systems and can be compared to biomimicry which is a design process embedded in and copying nature. (Mollison,1993; Holmgren, 2011).

Critics of permaculture include those who maintain that permaculture is a theory rather than a practical applicable model for transition of society even if permaculture is generally accepted as being very practical in its methods. There is a lack of controlled trials and measured experiments to test what is claimed to be the low input/high output yields of permaculture and the benefits and practical application in wider society. Some critics see the model as *fluffy* and idealistic rather than realistic and applicable (Harper, 2013). Nevertheless, permaculture and forest gardening - a derivative of permaculture - are becoming mainstream initiatives. Private households,

areas in cities, rooftops and a variety of other spaces are being cultivated according to the principles of permaculture and forest gardening in the drive to *green* the cities. Permaculture is often part of sustainability initiatives and bottom-up processes led by local communities or councils and help to generate small and locally initiated food production systems. The initiatives bring with them social benefits in terms of community building, volunteering and local enterprise.
Illustration: https://permacultureprinciples.com/flower/

The Natural Step (TNS)

Swedish scientist and cancer specialist, Karl-Henrik Robèrt, created the framework for a strategic and systematic development called The Natural Step in the late 1980's. The concept stemmed from his study of cancer patients and cancer cells relating to how and what causes cancer, how the cells grow and develop and the factors that affect and influence the growth (Caradonna, 2016; Natrass and Altomare, (2001).

Robèrt's document on The Natural Step was considered so significant that it was broadcast in 1989 on TV and sent to households and schools in Sweden with permission from the Swedish King (Robèrt, 2002, p. 32). Since then the concept has spread to the rest of the world and has been adopted by leaders, corporations, local communities, schools and colleges as a useful model and methodology for sustainable development. The Natural Step advocates four basic system conditions as well as a step-by-step approach to implementation of sustainability. The conditions include the following:

- Eliminate the build-up of the substances, which are extracted from the earth's resources.
- Stop adding to the toxic substances, i.e. dioxins, which pollute the planet.
- Eliminate the physical degradation of the natural habitat.
- Eliminate the actions that undermine people's capacity to meet their basic needs in terms of living and working conditions.

In addition, TNS promotes a learning process, a step-by-step methodology to facilitate and help organizations plan for sustainability. The TNS stresses the fact that we are an integral part of nature, not separate from it and that we cannot exist without clean air, clean water, fertile soil and a diverse natural habitat (Willard, 2012; Blewitt, 2008; Kibert *et al*, 2011). When TNS was first created, it gained attention from many companies. Especially Scandinavian corporations and companies worked with the

model and adopted the methods to further their engagement in sustainability. However, not much current information exists on the model and it seems to have receded behind the other models.
Illustration: https://thenaturalstep.org/approach/

2.9.4 Universal models

The IPAT equation – a global equation

One of the initial and key attempts to express human impact on the planet was developed in the 1970's and was called the IPAT equation or formula. The equation was created by Barry Commoner, Paul R. Ehrlich and John Holdren (1971). The equation attempted to explain human impact on the environment in terms of three components: population numbers, levels of consumption termed *affluence* and impact per unit of resource use, which was termed *technology*. As one component changes so do the other two. It is therefore possible to create an intervention on one of the components to achieve a desired result in the others. The equation is expressed as follows:

$I = P \times A \times T$: *I = Environmental impact; P = Population; A = Affluence; T= Technology.*

To reduce environmental impact the elements that make up the equation need to be adjusted. The IPAT model is in its essence a theoretical methodology. It is still quoted today and is used to demonstrate the interconnected aspects of the sustainability factors. Population increase is considered one of the most important factors to be addressed (Blewitt, 2008) in order to achieve sustainability, due to food, fresh water and resource needs (Rosling, 2018). It is estimated that the global population will reach 11 billion by the end of the century, if the trajectory continues along the lines currently indicated. Statistics stemming from the Millennium Goals indicate that an increase in affluence across the globe means greater use of resources. With a large population increase and greater affluence the impact per unit of resource use (T) must decrease dramatically in order to reduce (I) the impact. In this example, only technology can meet the challenge and lever a balance as both increase in population as well as rise in affluence impact the environment adversely.

Relating the equation to the current estimate of an additional 3 billion people receiving middle class incomes by 2050, the statistics state that CO_2 emissions will rise by 50% if nothing is done to curb emissions in the short term. If governments do not act on the Sustainability Development Goals immediately the trajectory of temperature increase can reach 3-5 degrees as previously mentioned. The likelihood of immediate action by governments to step in to limit resource use with sufficient green legislation measures is doubtful. The estimated population growth reaching 11 billion by the end of 21st century will add a further burden on resource needs. It can be questioned whether technology is capable of alleviating this burden sufficiently for the impact to be controlled in time to curb global warming.

The 17 Sustainable Development Goals

This latest model initiated by the UN has become popular globally. The 17 Sustainable Development Goals were agreed in the UN by 192 countries in September 2015. The 17 goals followed on from the Millennium Goals and were created by a cross section of world actors: the UN, governments, the business sector and civil society. The goals are unique as they are universal, interdependent and transformative. Achieving the goals requires all sectors of society as well as all countries to work together and multi-stakeholder partnerships to share knowledge and technologies, expertise and financial support (Hildebrandt (ed.), 2016).

The new aspects include the fact that the goals apply to all people, organisations, institutions, businesses etc. everywhere. It is possible to work with one goal, however, being aware that achieving one goal will affect most of the others (UN, 2015). In Denmark many actors have engaged with the 17 SDGs since 2015. Municipalities, cities, communities, schools, businesses, organisations and NGO's are committing to working with the goals. A cross section of politicians from all parties are members of a network called the 2030 Panel, where they gather multi-disciplinary members of civil society for discussions at Parliament on implementation perspectives (Folketinget, 2020). The latest work is, for example, a focus on how to implement goal nr.12. The project includes obtaining the relevant statistics and developing scenarios, processes and methods to meet the goal using indicators relevant to Denmark. The emerging challenge that the goals present is the need for statistics, information and facts necessary to monitor and measure results (Hildebrandt, 2018).

Opinions regarding the potential of the goals to be achieved by 2030 are divided. When the goals were introduced in Denmark, many actors in society felt relief in the breaking down of the sustainability construct into 17 goals that contained both sub goals as well as indicators. Novozymes, Case study 3 (Section 5.5) adopted the 17 SDGs as did many similar Danish companies, promoted and supported by the Foreign Ministry (Danida, 2017). However, looking deeper and as time has passed the initial enthusiasm has receded to some degree. However, books have yet to be published on the effect of the 17 SDGs. It is 4,5 years since they were launched, and some time may be needed before a valid judgement can be passed on the model.
Illustration: https://sustainabledevelopment.un.org/?menu=1300

2.11 SUSTAINABILITY INDICATORS, STANDARDS AND CERTIFICATIONS

An important phase of the implementation process is ensuring that the applied models work according to plan and are generating the desired results. To help further this third level of implementation a number of tools including indicators, standards, certifications and lately advanced assessment tools have been generated since 1992. As evidence indicates from the variety of models and methods mentioned in the previous sections, the task to implement sustainability is difficult, complex and requires systemic change and innovation at all levels of operations. Research centres have subsequently carried out extensive work to find appropriate and operational ways to measure progress and results.

The UN, following the Rio Summit in 1992 and as part of the Agenda 21 programme, developed the first set of sustainability indicators. Proposals for sustainable development were put forward, and it was logical that these should be followed by a set of indicators to help measure the implementation process and monitor progress. A brief look at some of the later indicators explains the underlying complexity of this field and the difficulties many experts faced in trying to identify the ways and methods with which sustainability could be implemented and monitored (Bell and Morse, 2008; Blewitt, 2008).

2.11.1 Sustainability monitors and measures

A number of the models outlined in this section contain different perspectives of the implementation process. The Ecological Footprint and The Natural Step (TES)

described above as well as the 17 SDGs can be regarded as sustainable development models, that also include indicators and assessment tools (Section 2.11).
Some of the more critical examples of methods to monitor and measure impacts of sustainability initiatives are included in the following section. The field develops continually, and new methodologies emerge.

The Bellagio Principles were one of the earlier attempts, created in Italy by a group of international researchers and experts in 1996. The group proposed 10 principles for sustainable development. Four of the ten principles dealt with monitors and indicators on a broad scale, addressing holism, time and space. They advocated a limited number of indicators as well as recommending that these had broad accessibility.
It was an attempt to provide a bridge between the theory and practice of sustainability and thus providing an overview of what was necessary rather than focusing on specific issues. The principles were intended for use by community groups, NGOs, corporations, national governments and international institutions and dealt with initiating and improving assessment activities (IISD 2019).

The Ecological Footprint Analysis, published in the mid 90's (Wackernagel and Rees,1996) was a measure of the amount of (land-based) natural capital, that was required to supply a region, a people or an economy with the resources needed and assimilate the waste produced. It was developed to measure human impact on the ecosystem. An Ecological Footprint calculator was created and used in mainstream media for people to try out and measure their individual impacts. The Ecological Footprint has formed a Global Footprint Network. The most well-known action is calculating the Earth Overshoot Day, the day where the global resource output balances with the earth's capacity to contain it without damaging the natural resource base. The latest calculation is that humans use the equivalent of 1,75 earths' resources p.a. Last year (2019) the Overshoot Day was July 19th (Global Footprint Network, 2020). On this day humanity had spent its natural resource budget for the year, meaning that the rest of the year the resource base would be eroded. Given that humanity is dependent on the natural habitat for its survival according to the definition of sustainability (Section 2.4) the overuse of the natural capital is undermining the future existence of humanity. A parallel can be drawn to Diamond's book "Collapse" (2011), where he documents how societies' falls are triggered by scarcity of resources.

The Environmental Space (TES) was developed by Friends of the Earth, Netherlands, in 1992 as part of the Sustainable Netherland's Action Plan. TES is a methodology that measures the space which a person, region or country should be using for living and working activities that falls within the carrying capacity of the earth (McLaren *et al,* 1998). It is similar to The Ecological Footprint but has a focus on the amount of space available rather than on the impact caused.

Life Cycle Assessment (LCA) methods have been available for many years. It is a methodology extensively used by the production, building and design industries. LCA is considered to be one of the most frequently adopted methodologies in the sustainability development process. Early on LCA's were fairly simple tools generated to measure the sustainability of a product mainly in terms of resource and energy use. The LCA method now covers all aspects of a product's or a service's life and can give a complete picture of the whole cycle from raw materials, production, manufacture, to transportation, distribution, sales, use, disposal, waste and final disposal. LCA is also called the cradle-to-grave process (Hauschild, 2015). One of the cases researched in this thesis, Novozymes, utilised LCA throughout the company's production line of approx. 700 products to determine how resources were being employed and waste generated. It was one of the key tools to help direct the company towards engaging in sustainable practices.

"We cannot improve what we cannot measure. That is the simple explanation as to why research and method development in Life Cycle Assessment is so incredibly important for the future of the environment and the development of more sustainable industry, transport, energy, etc.," - *Hauschild, 2015.*

Criticism of the method is that it does not cover all impacts such as social impacts. Another aspect is that several LCA methods exist, not just one universal system, hence, the quality of the LCA method will reflect the quality of the results generated. The LCA is a science-based methodology like many of the other methods and is similarly criticised for being complex, challenging and costly for many organisations and companies to draw benefit from (DTU, 2015).

Sustainability Assessment (SA) is a relatively recent appraisal methodology that encompasses the Triple Bottom Line field of economy, social as well as environmental issues. Sustainability assessment involves the application of a number of

methodologies, models and indicators and is one of the most complex tools available and moves beyond the more specific, technical tools. "Methods to quantify uncertainty are key ingredients of the assessment framework" (Sala, Ciuffo and Nijkamp, 2015; Gasparatos, 2010).

2.11.2 Standards, certifications and labelling

Standards and certifications

The main purpose of standards and certifications is to make sure that what is produced and how it is produced are *fit for purpose*. ISO standards are essentially created for industry to optimize their business activities ranging from safety to quality, to minimize waste and increase productivity and profitability. Many environmental standards both in terms of production as well as strategy and management are generated to ensure that a company's activities in this field follow specific requirements. In terms of certifications more businesses are becoming increasingly keen on promoting products and services that have been certified as it adds a qualitative dimension to the products or services and enhances marketing impacts. Certification applies to a wide field of operations, for example within the sectors of building, business, agriculture, tourism, cities, organisations and companies.

One of the most important standardization organisations is the ISO (the International Organisation for Standardization). ISO standards are utilised in LCA assessment processes as well as in Global Reporting, GHG protocol, Life Cycle Accounting and Reporting Standards. The ISO is a large organisation that develops standards for almost every commercialized activity. There are currently approximately 19.500 standards available but only few are related to sustainable development (ISO, 2019).

Labelling

Labelling does, as standards, represent an entire industry. Currently approximately 500 labels exist in the European market that are related to ecology and sustainability both in terms of material sourcing, production, distribution, social and ethical issues. The value lies in quick information impact both in the consumer industry, the service industry as well as in the supply chains. One of the barriers is the fact that a company has to earn its label, fulfilling a number of criteria to gain the use of a specific label. For the consumer it is a difficult field to navigate in and to know exactly what each label stands for. However, labelling of products and services has eased choices regarding

purchases, and there are no longer any excuses not to buy sustainably (OECD, 2020).

2.11.3 Social indicators and indexes

A number of social and well-being orientated indicators and indexes has emerged, mainly during the last decade, as human well-being has become an increasingly acknowledged and essential factor in sustainable development. Governments use the GPI, the Genuine Progress Indicator to examine a country's progress towards sustainable development. Additionally, there is the HDI, Human Development Index, developed by the UN in 1990 to monitor progress on human development. The HPI, the Happy Planet Index, was formed by the New Economics Foundation in the UK and is a parallel to GNH, the Gross National Happiness index, based on which the country of Bhutan measures its progress and development targets. The index is the opposite to the GNP, Gross National Product, which has been the adopted measure of a country's economic progress from 1944 onwards. A further measurement such as the GDI (Gender-related Development Index) from 1995 has offered an alternative perspective but is often criticised for leaving out important components such as ecological considerations or for being socially or culturally biased. (Sharpe,1998; Cardonna, 2016).

Even if these indexes and indicators have existed only few have been utilised due to the social and human aspects they represented. The social indexes have been regarded as inferior to the ISO standards and certifications and other measures, that were developed to optimize the profitability of the business industry. ISO standards in terms of productivity and efficiency are therefore still regarded as more important than the social indexes. This pinpoints the power of the dominant economic factor in the sustainability equation and highlights an important aspect in the mix of barriers to sustainability.

The final index to be mentioned is the Social Progress Index, developed in 2010 and launched in 2014. The Index defines social progress as: "The capacity of a society to meet the basic human needs of its citizens, establish the building blocks that allow citizens and communities to enhance and sustain the quality of their lives, and create the conditions for all individuals to reach their full potential" (SPI, 2019). The index was relaunched in 2015 with some updated content. The aim for the index is to play a major role in the translation of the Sustainable Development Goals. It is claimed by

the initiators that the focus on human well-being will bring about the paradigm shift needed, as opposed to the focus on economic growth. The claim is supported by SPI statistics showing that economic growth and degree of human well-being are not interdependent nor are they proportional. Some countries with medium GDP's have higher rates of human wellbeing than countries with high economic growth rates. The SPI does not include environmental aspects, and cannot as such be considered a sustainability index, although social and wellbeing issues is at the heart of sustainability.

2.12 SUMMARY

It was the aim of this review to outline the essence and scope of sustainability, its facets, components and applications, based on the research and writings by acknowledged academics and authors. The objective was to define a comprehensive body of knowledge from which to address and frame the research enquiries. In this summary a number of concerns and issues are discussed that emerged from the review. These include the difficulties and barriers that are hindering the process towards sustainability and documents some results of initiatives that have taken place during the past three decades.

2.12.1 Barriers and obstacles to sustainability

Overall it can be argued that the crises that led to the creation of the sustainability construct and the promotion of sustainable development may also be the main barriers to their realisation. In particular the dominant political and economic paradigm as described in Section 2.3.1. It is the result of the neoliberalist development agenda, undertaken globally, though predominantly in the West. It promotes economic growth and pays little attention to the importance of the natural habitat, pollution and limited non-renewable resources. The paradigm is still prevailing, and until sustainable development is implemented by governments worldwide the current trajectory of status quo will persist, and more crises will occur. Some argue that the current Covid-19 pandemic is a direct result of the decrease in biodiversity (Marshall, 2020).

Below is an outline of the barriers to sustainability that emerged during the review. They include the above critical factor as well as a further broader range of difficulties put forward by the researchers and authors referenced in the chapter.

The complexity perspective

Sustainability, as Kibert et al (2012) describes it in the quotation at the start of this chapter, appears to be a relatively simple and straightforward concept. Looking deeper, however, its complexity can seem almost overwhelming. Theories, concepts, principles, models, indicators and standards have been created and developed continuously as this chapter exemplifies, to make sense of the construct as well as making it operational. The implementation difficulty appears to centre the systemic change required to achieve sustainability.

In addition, the use and misuse of the word *sustainability* or *sustainable* and the way they are manipulated from a multitude of perspectives based on diverse interests add to the difficulties. The research points to the fact that most critical methods and tools for implementation are designed by academics and engineers, where aspects such as the human and psychological aspects of people's everyday lives seem to be ignored or underplayed. These aspects are, for example, not mentioned in the 17 SDGs but are, however, vital in a transition process when people and their livelihoods are involved and affected.

The business perspective

From a top-down perspective one example of the difficulties in applying sustainable development principles is balancing the three economic, social and environmental factors. According to Kibert *et al* (2012) it is not possible from a business point of view to measure social/people accounts or indeed the environmental account in the same way as the profit accounts. Robert Gray and Markus Milne (Henriques and Richardson 2004, p.74) state in their chapter "Towards Reporting on the Triple Bottom Line: Mirages, Methods and Myths" that in a situation where there are conflicts of interest between the three factors, the economic, the social and the environment, the latter two would not be considered as important as the first, namely the economic. This aspect in itself points to a moral dilemma for companies working with sustainable development initiatives, as they first and foremost look to balancing the economic bottom line. As such, companies prefer the aid of technology to solve environmental challenges as it is specific and can be controlled as demonstrated in the life cycle analysis (LCA) approach (Section 2.11.1).

Measurement and indicator issues

Another example of barriers, explained by Bell and Morse, is the reason why they undertook to write about sustainability indicators. In the book "Sustainability Indicator: Measuring the Immeasurable" (2008), they maintain that the existing tools for measuring sustainability are not appropriate as they do not include the whole picture. The authors believe that the development of indicators and measurements have failed. Sustainability has become defined by the parameters of the indicators rather than the indicators being defined by the progress of sustainability. In addition, Bell and Morse suggest that sustainability is too holistic and spiritual to be measured objectively. Their view does not correspond with other authors' views of sustainability as shown in the section on models and indicators in this chapter, where neither spirituality nor holism appear to play a role. To support the views of Bell and Morse the findings of the case studies in Chapters 5 and 6 indicate that spirituality and holistic aspects played an important part in achieving the positive results on the island of Samsø (Section 5.3.4) as well as in the Brahma Kumaris communities (Section 5.4.2). Spirituality furthermore played a major role in many intentional, sustainable communities as the chapter on utopianism confirms. Both past and more recent publications support this aspect such as Charles Eisenstein's "The More Beautiful World Our Hearts Know is Possible" (2013), "Nature's Due" (2007) by Brian Goodwin and "The Turning Point" (2014) by Gregg Braden. They promote the argument that sustainability is a holistic construct and that all aspects of society and humanity are important both in *healing* our fragmented cultures as well as transitioning to a sustainable state. Paul Ekins (1992) believes as Bell and Morse that as sustainability includes many facets of human life creating a holistic sustainability index becomes a difficult task. He argues that some sustainability measures cannot be quantified and are not comparable with economics and finance, as they are based on ethical and moral principles. Blewitt adds that "science can inform and ecology can serve as a model for sustainable development, but sustainable development cannot be reduced to either" (2008, p.174). This research argues that sustainability cannot be achieved without either as it inherently encompasses both. Neither does the research support Paul Ekins' view that creating a sustainability index is too difficult a task. The recent emergence of new social and wellbeing indexes corroborates that holistic orientated indexes are available, for example the GNHI (Gross National Happiness Index) and the HPI (Happy Planet Index). Difficulty does not hinder innovation, especially if there is sufficient value to be gained from it as the case studies verify (Section 2.11.3).

The psychological perspective

As an extension of the above barriers the psychological aspects should be mentioned. It is a human condition that there is an inherent and automatic resistance to change (Harvey, 2019). The psychological aspects in the context of sustainability could constitute a research project by itself. A number of papers and chapters that address the issue were examined in the literature review. One of the latest examples is from the book by Michael Harvey: "Utopia in the Anthropocene" (2019) where psychological evidence is part of the approach and analysis. In the case studies, the psychological aspects emerged as key factors in generating constructive and successful transition processes, where the whats-in-it-for-me and personal factors were significant elements in the processes.

2.12.2 Result of initiatives

The chapter on sustainability has documented the critical facets and elements that can pave or oppose the way towards sustainability. It is an argument supporting this research investigation that three decades down the line of discourse and activities on sustainability, no state, no society, no company, no corporation, no city, no village apart from possibly the Eco-village Network as well as small intentional communities around the world, exist at the present time that is 100% sustainable in the context of the Brundtland definition. There are some mainstream intentional communities, that are self-sufficient in renewable energy such as Samsø, and there are companies such as Novozymes that are using sustainability as a strategic tool. As resource flows are interlinked and centralized it may be difficult to completely control all elements in a sustainable transition. Some element is often missing either a social, an environmental or an economic dimension. The problems that gave cause for sustainability to become a necessary vision for the future are still facing the global population today. They have not been solved despite many initiatives and good intentions. There has been progress in reducing environmental impacts at local levels as well as improvements in the developing countries according to the World Bank (2015). These improvements relate to hunger, education and health initiatives and are seen as a result of achieving some of the Millennium Goals. However, despite some positive results global warming is rising and the effects are increasing at a cumulative level.

2.12.3 Current state of play

It thus appears that we have not moved much further towards sustainability on a

global scale since the publication of the Brundtland Report in 1987 in terms of impact. As the chief economist in the International Energy Agency, Faith Birol, said in June 2012 after the Rio+20 convention: "We are moving backwards" (Information, 2012). More evidence of this was reported in Worldwatch publication "State of the World, 2012". In the chapter by Birch and Lynch (2012, p.78) they state: "...some believe that progress has been sluggish, and they attribute the slow adoption of the paradigm to political resistance, limited financial resources, and such technical issues as the absence of scientifically valid and credible indicator systems".

As the research indicates a number of barriers hinder the progress towards achieving sustainability. Some are mentioned in this chapter, others are documented in the case studies. In addition, one condensed set of factors that could be mentioned in this discussion are a set of values introduced by Harvey (2019). He calls the dominant paradigm "growthism" (2019, p. 32) and points to the values or factors that he denominates the CIMENT values. They consist of "competitivism", individualism, materialism, elitism, nationalism and "technologism". In the current world order, he maintains, there are only winners and losers as "the only choice appears to dominate or to be dominated" (2019, p. 36). Individualism has been promoted over the last few decades. It is the essence of the *American dream* and it places the responsibility for sustainable development on the individual rather than on the state. Individualism is an integrated part of the political and economic ideals introduced by Reagan and Thatcher where the latter in 1987 is quoted to have said:" There is no such thing as society, only individual men and individual women"(Harvey 2019, p. 37). Materialism is similarly seen as a symptom of the growth paradigm. The phrase *I shop therefore I am*, has often been quoted and possessions and material wealth are regarded as more important than natural resources, the natural capital. Regarding elitism, the power and promotion of elites have expanded particularly seen in the increase in inequality and inequity worldwide. Nationalism as a factor has almost become the norm in most countries, expressing itself through a populist fear of foreigners, refugees and immigrants. As the last factor in the CIMENT set of values Harvey mentions technology, as the current tool with which to dominate nature. In the context of climate change new technology is the preferred intervention with which to find solutions. However, it is also a field that has presented our societies with unprecedented challenges (Harvey, 2019, pp. 31-40).

This thesis argues that a realistic and tried framework is needed for sustainable development to progress, that is supported by practical and proven sets of tools and knowhow specifically for civil society to engage with. Parallel to this state intervention is required that supports the transition through laws, rules and regulations. From the literature review it appears that none of the models including the recent Sustainable Development Goals are currently sufficiently practical or tested to meet the challenges by 2030, unless governments intervene on a global scale. The current unexpected pandemic of Covid-19 might cause a further setback due to the emerging monetary crisis. On the other hand, taking a positive approach the pandemic might also be able to further the sustainable development process.

One of the main conclusions drawn from Chapter 2 is the conundrum that despite weighty and urgent reasons sustainable development initiatives are not alleviating the crises as intended. The chapter points to a variety of explanations for this, the most critical being the inability or unwillingness by governments, the business sector as well as civil society to embark on the profound changes that are needed. Instead the actors are trying hesitantly, pressurised by the increasing climate crisis to reform society through individual and fragmented interventions. It could be argued that development theories do not suffice in this context. A more drastic transformation agenda is needed. The next chapter therefore investigates utopian theories to find out whether sustainability belongs to the field of utopian thinking rather than in the realm of theories of development.

CHAPTER THREE
SUSTAINABILITY AND UTOPIA
Literature Review 2

"The power of utopian thinking, properly conceived as a vision of a new society that questions all the presuppositions of the present-day society, is its inherent ability to see the future in terms of radically new forms and values"
- Bookchin, 1980, p.280.

Fig. 3.0 Illustration: Thomas More's Utopia

CHAPTER 3: SUSTAINABILITY AND UTOPIA

3.1 INTRODUCTION

Chapter 2 aimed at investigating sustainability and its applicability in the current dominant paradigm. Searching for similar challenges in a historical context it was considered a possibility that there might be a link between the construct of sustainability and utopia. Preliminary research uncovered similarities and it was deemed relevant to examine the concept of utopia in order to define its relevance to sustainability and the research questions.

The following queries are thus addressed in this chapter:

- Is sustainability a construct on par with utopian theories and models that have instigated societal change?
- What knowledge can be gained from sustainable utopian experiments in the past?

It was decided to address the above through a literature review. An alternative method to explore utopian experiments could have been a case study. However, it was decided that the case study approach was more appropriate in answering the second main research question on lessons learnt from real life applications of sustainability. To support the decision was the fact that research already existed on utopian aspects of sustainability issues, as is documented in the chapter, whereas research on implementation processes of current cases was limited.

Examination of utopia spanned the history from the time of Plato to the present. It consisted of findings from historical and existing research and information on utopia. Data was collected from the UN, the European Environmental Agency, a number of websites for intentional communities such as the Ecovillage network and research institutions, such as the Institute of Utopian Studies. A comparison of the findings was exemplified through past real-life models and experiments that pointed to interrelationships, similarities and differences.

The quote on utopia introducing the chapter expresses the opinion of many researchers and writers who have promoted constructive and positive aspects of

utopian thinking including its merit and importance in the development of societies whether looking back in history or forward into the future. The quote confirms the widely accepted notion that new concepts or ideas have throughout history been designed either as an opposition to the present, fear of the future or as an attempt to aspire to a better future. A *better future* in a utopian context is usually related to an increase in human wellbeing.

3.1.1 Content

The chapter consists of three main parts:

- Utopian constructs and models: The nature of utopia, including the importance of the concept in re-shaping societies. Definitions and meanings. Roles and types of utopia. A historical overview. Current utopian thinking and beliefs.
- Utopian experiments: Utopian settlements and other experiments.
- Sustainability as utopia: Sustainable utopias, utopian ideas or models with a specific environmental or sustainable bias. Examples of experiments, both past and present.

To be able to determine the similarities and differences between sustainability and utopia the chapter defines the parameters within which utopia exists and examines the world of utopian thinking in a similar structure to that of Chapter 2 exploring sustainability.

3.1.2: Literature reviewed

Utopia represents a well-established and well-researched field of knowledge. Much research into the topic exists. When choosing the reference material for Chapter 3 research institutions on utopia were consulted, mainly the Society for Utopian Studies and the academic journal: Utopian Studies as well as universities specialising in utopian studies. The scope of reference material was chosen with the view to document the most well-known and classical examples of utopian theories including both positive as well as negative critiques of the field. The main aim was to define the essence of utopia to discover whether there were similarities to the sustainability construct. The references include a wide variety of authors and researchers through history who have investigated and/or added new theories to the field of utopia. A

number of these have pointed to the more critical aspects of the field as documented in the chapter.

The researched literature in Chapter 3 includes primarily authors and researchers who believed in the importance of utopia. Collectively they regarded utopia as a guide, vision or blueprint, which could lead towards positive change in societies and communities or warn against the damage that some developments might have on ways of life. The review also includes literature that questions and challenges the role of utopia and its relevance in a societal context such as proposing that utopian thinking is too idealistic at best or a type of totalitarian thought or joke at its worst (Goodwin and Taylor, 2009; Hallman, 2010).

3.2: DEVELOPMENT THEORIES

"We emphatically need new political-economic theory to save the world, and it will not come from conventional economics" - Peet and Hartwick, 2015, p: viii.

It can be questioned why the choice to focus on utopia and utopian theory prevailed in this thesis rather than comparing and defining sustainability within the field of development theories, given that sustainable development itself is regarded as a development theory (Golin 2016, 2018; Peet and Hartwick, 2015; Kingsbury et al, 2016; Hopper, 2012).

Based on the experience from a career of many years working with, in and around sustainability issues and not understanding the lack of coherent intervention to work towards global sustainability there was a wish and intention to look beyond the dominant paradigm. The aim was to explore and find clues as to how a transition to a state of sustainability could be achieved as it did not seem to emerge from traditional thinking in the context of development theories. Even though sustainable development is included in the list of theories of development the attempts to implement sustainable development have so far not achieved the required goals.

Development

"*All critical approaches find development, as presently understood, to be a mistake of (natural and social) global proportions*"
- Peet and Hartwick, 2015: p 311.

Authors and researchers define development as a process by which nations can improve living conditions for their citizens. Until recently these improvements were specifically associated with economic advancement. The belief was that the result of economic growth would benefit all people (Goldin 2016; Peet and Hartwick, 2015, Piketty, 2020). Development theories offer a multitude of ideas of how to develop and better societies both at a national as well as international level.

It is not the aim of the thesis to discuss the wide extent of the field of development theories but to comment on the results of their implementation. Looking at some of the theories that have been sought realised since the 2nd World War it can be argued that the implementation of for example the modernization theory succeeded in achieving better living conditions for many people worldwide, as the published results of the Millennium Goals confirm (Rosling, 2018). The modernization theory advocated a development process consisting of five stages, also known as "Rostow's stages of development" (Hopper, 2012; Rostow,1960). The stages included a progression of a society initially being based on agriculture through introduction of industrial growth, building societal infrastructure, to manufacturing and advanced industrial and technological growth to the final stage of mass consumption, outsourcing of production and introduction of well-fare initiatives. This development takes six or more decades, and it explains how the Western countries have reached their levels of development. It has been a development process that also the third world has engaged in but has only achieved a certain degree of progress. The theory of dependence explains this phenomenon: why the third world countries have not reached the same high standard of living of the Western world. The dependency theory outlines how international capitalism has maintained the status quo through "exploitative relationships". If all countries were placed on two concentric circles - illustratively - the middle circle would be filled with the rich countries being fed primary goods, raw materials, other resources and cheap labour by the countries placed around the periphery of the outer circle. These outer countries get to rely on the demand from the rich middle and receive imported goods from the centre. Thus, becoming locked in a dependency trap (Goldin, 2016; Hopper, 2012; Peet and Hartwick, 2015; Kingsbury et al, 2016).

Supporting the above it is the fact that the Western countries overall have benefitted most from development initiatives, whereas countries such as those on the African

continent as discussed in Section 2.6.1 have benefitted the least. Studies show that approximately 15% of the world population own 80% of the world's wealth (Kingsbury et al, 2016; Klein, 2014; Goldin 2018). Poverty still exists. In 2016 approximately 1 in 10 people lived on a wage below $1.90 a day. 80% of these lived in just 20 countries. The evidence points to increasing inequality, a wider gap between rich and poor.

More recent development theories such as Keynesianism and neoliberalism have ruled the global political and economic scene since the 2nd World War. The Keynesian regime advocated ideals such as high income, full employment and free social services for everyone with the state as the moderator, implementer and supervisor of these interventions. The neoliberalist regime, which rules the current dominant paradigm advocates the opposite including less state intervention, more privatization and increasing economic growth.

Sustainable development belongs to the more recent theories and is as such markedly different from the conventional development approaches. Sustainable development is discussed in Chapter 2, Section 2.4.3 as a development process that aims to increase human wellbeing. This is the factor that ties it to other development theories. Where it differs from the conventional theories is its focus on the planet and the natural habitat aiming at reversing climate change, reduce pollution, limit resource usage, promote gender equality.

Sustainable development aims to achieve well-being for all of humanity within the carrying capacity of the earth. This is where the traditional thinking in the current paradigm has failed. There has not been any focus on the impact of development on the natural habitat or indeed, an assessment of its value. Traditional development theories set in the current neoliberalist paradigm can therefore not meet the challenges of the transition to a state of sustainability. The essential nature of development as mentioned in Sections 2.6.1 is based on growthism and materialism and is production- and consumption orientated. Development is (still) measured in GNP and GDP, and although new ideas include other factors such as social issues besides the economic it can be argued that the trajectory of the current development parameters will not lead to a state of sustainability.

3.2.1 The case for utopianism

"..utopias are always radical rather than reformist. They argue that what's needed is not just a modification of the existing system but a completely different system" - Harvey, 2019: p 6.

The case study described in Chapters 5 and 6, outlines the level of achievement possible when engaging with sustainability within the current dominant paradigm. A certain level of sustainability can be achieved through individual initiatives but cannot alone create a sustainable society as Chapter 2 has shown. Evidence indicates that a trajectory towards sustainability through conventional development theories set within the current paradigm will not achieve the goal.

Development has in the mainstream come to mean economic growth benefitting the rich, furthering inequality, increasing resource abuse and pollution of the land, the sea and the air, generating civil unrest as well as increasing the number of refugees and migrants worldwide, currently ca. 80 million. A systemic shift is required that is more challenging and far-reaching than any of the current development theories advocate. Thus, as the quote at the start of this section points out, a non-conventional, different approach must be taken. This approach therefore has to be based on more radical theories if a global state of sustainability is to be achieved. It is for this reason that the thesis places a significant focus on utopian thinking and dedicates a chapter to exploring the topic and investigate previous attempts at paradigm shifts.

Utopian thought and theories are essentially transformational. Utopianism has throughout history advocated radical changes and set out scenarios of entirely different societies as Chapter 3 documents. It can be argued that it is from the more courageous and pioneering thoughts and ideas that a sustainable society may emerge and not from reformist theories. The chapter therefore outlines the field of utopia, the ideas and theories as well as the positive and negative aspects of such thinking.

3.3 THE NATURE OF UTOPIA

Some authors believe that utopian ideas came about as a result of political change and social developments including transitions and periods such as the discovery of the New World, the Age of Enlightenment as well as the French

Revolution (Carey,1999). Some believe that utopian ideas have had transformative powers, that they have brought about political and social changes and influenced decision-makers. Others argue that utopian ideas rarely received any recognition by politicians and were merely some kind of fantasies without any real purpose or meaning (Miles, 2008; De Geus, 1999). Publications from the 20th century such as George Orwell's "1984" (1949), Aldous Huxley's "Brave New World" (1946), Kurt Vonnegut's, "Player Piano" (1952) and Ernst Callenbach's "Ecotopia" (2009) contain imagined scenarios or thought experiments on how society might or could develop. In some instances, predicting dystopias rather than utopias.

"*Utopias hold up a mirror to the fears and aspirations of the time in which they were written: In that sense utopianism is always in fashion*"
- Goodwin, 2001, p.2.

In Goodwin's view we have always been influenced by utopian thought and ideals but lately we have been inundated by nightmare (dystopian) scenarios. It is evident from recent publications and visual narratives that this is still so today. Michael Harvey states that since the 1970's there has been a lack of utopian fiction. Instead greater amounts of dystopian scenarios have emerged. He states: "Incredibly, this century, dystopian novels outnumber utopian fiction by a hundred to one" (Harvey, 2019, p.7).

3.3.1 "Every present is a past utopia"

The quote is a statement by Claeys (2011, p.12). Utopian concepts cover a long and broad range of ideas over time, that spans from Plato's political "The Republic" ca. 360 BC. to Thomas More's "Utopia"(2010) for a spiritual and community life, Henry Thoreau's utopia of ultimate simplicity, "Walden" (1854), William Morris's utopia of austere beauty, "News from Nowhere" (1890), Ernest Callenbach's steady state "Ecotopia" (2009), Murray Bookchin's eco-communities (1980) and Micho Kaku's "Visions" (1998) on planetary intelligence. The consensus by utopian writers, whether in praise of utopia or being critical, is the fact that utopianism has had and still has a role to play in creating an alternative vision, model or scenario for societies and as such has had a profound influence on shaping our futures.

Some authors view the current time as a waking up period where Popper (2014) imagines an insecure society where nothing can be taken for granted, and Monat (2017) projects that when through ICT human connectivity reaches 70 billion connections…"the organismal self-awareness of humanity may manifest itself with the end of hunger, wars and the collaboration of all individuals" (Ed. Poli & Valerio, 2019, p.31). However, Monat estimates this might happen between the years 2400-2600. Even if these postulations appear far-fetched, there is a need to acknowledge and respect utopians, visionaries and scholars, listen to their stories and narratives, and study their scenarios as we might learn something. The past contains clues to the future.

3.3.2 Paradise or state

Utopia can take the form of myths, political manifestos or constitutions. Plato's "The Republic" (427-347 BC.) (Pappas, 2003) is famous for being one of the earliest political utopias. Plato was a disciplinarian and authoritarian and his republic should be ruled rigorously. Some of the ideas and principles include:

- Equality between men and women.
- The rulers or guardians (as they were called) must live modest lives.
- Private property is banned.
- Luxury living is looked down upon.
- Frivolity, anti-social behaviour and artistic activities are banned.

Where Plato's ideal society was based on a mixture of political and social principles (including communist principles), other utopias dealt solely with social issues, and the earliest examples were based on religious beliefs relating to paradise on earth. The more recent examples include environmental issues and are described as ecological utopias also called ecotopias or sustainable utopias.

Utopia was in early literature up to 17th century a place or state, which existed mainly in theory and was generally depicted as a form of paradise based on divinity. From that time many intentional communities or settlements, mostly smaller in size were set up within a specific framework or idea, frequently based on a combination of religious, social and political principles. Today thousands of intentional communities exist around the world, that have been founded on such visions (Miles, 2008; Jackson and Svensson, 2014).

3.4 DEFINITION OF UTOPIA

"*The imaginary reconstitution of society*"
- Ruth Levitas, 2013.

Utopia means: no place, from Greek ou = not + topo = place. This has been translated into meaning nowhere, a nowhere place. Some of the other terms applied to describe utopia are *bliss, Eden, Elysium*. Another version of utopia is eutopia, meaning a good place. The concept has developed and changed over the years in tandem with the advance of our societies, although the essence remains the same (Claeys & Sargent, 1999). Utopia, as a concept through literature usage, has come to mean the following:

- An ideally perfect state, especially in its social, political and moral aspects.
- An imaginary or real place considered to be perfect or ideal.
- An idealistic scheme for social and political reform.
- An ideal perfect place or state of things.

Utopia can thus be a society, a community, a settlement, a commonwealth, a village, town, a city or a nation. What fundamentally characterizes this type of theory is the fact that it is always set within a specific time and place context. It is an imagined but practical theory, a "philosophical thought experiment", which for many centuries remained an idea only (Goodwin, 2001, p.3) until pioneers took the idea and turned it into living experiments.

3.4.1 Extended definitions

Claeys and Sargent (1999, p.1-2) list a category of extended definitions, some of which are as follows: "Utopianism = social dreaming". Dystopia or negative utopia signify a utopia that is worse than the society in which the author lives. As the essence of utopia deals with seeking human well-being achieved either through religious, social or political means, dystopias are extreme and adverse societies associated with human suffering. Much visual creativity has been invested in the designs of dystopias specifically in the 20th century, where dystopian scenarios have turned into entertainment by the film industry and databased media in the form of computer games. This supports Harvey's statement of increased dystopias in the late 20th and 21st centuries. Utopias are rarely depicted in films in that period.

Among the few exceptions are "Lost Horizons"- a filmatized book about an oriental paradise by James Hilton (1933/1937) and the more recent "Avatar" by James Cameron from 2009 (Section 3.5).

The term utopia as we know it today was manifested and made public by Sir Thomas More in his book "Utopia" in 1516. More was a lawyer, philosopher, author, humanist and justice of the King's Bench under King Henry VIII. The book is about the island of Utopia the description of which is narrated by Hythloday, a Portuguese traveller and scholar, who visited the island. Utopia was a beautiful island in a far-away place, where people were happy, contented and lived fulfilled lives. All citizens were working with what came natural to them, and the societal framework and structure seemed to work to everyone's satisfaction. This was an ideal world compared to the one in which Thomas More lived in 1516 under the totalitarian reign of Henry VIII (Harvey, 2019). Many researchers and writers i.e. Mumford, Goodwin, Berneri and Claeys maintain that Thomas More was inspired by the Greek philosophers Plato, Plutarch and Aristotle in his design of Utopia. Other writers believe that the book was Thomas More's response to and critique of the social and political situation in England at that time. A few, for example J.C. Hallman (2010), considers Utopia a joke and a satire on More's society. These views reflect the general attitude to utopia consisting of a variety of opinions and interpretations.

The psychologist researcher and writer, Michael Harvey, published a book on contemporary utopia called "Utopia in the Anthropocene" (2019). Inspired by Thomas More and "Utopia" Harvey compares the background and framework for the emergence of "Utopia" five hundred years ago to current time, maintaining that both periods relate to historical moments that are pivotal and signify the meeting point of two eras. "Utopia" was written at a time where the modern or the new world was meeting the old order. The same can be said of today where, as Poli and Valerio (2019) state, we need to choose between creating a utopian or dystopian future, and where the future goals of the Anthropocene must be formed by "hindsight, insight and foresight" (Harvey, 2019, p.7) This is especially important in the current unforeseen and unpredictable state.

3.5 THE ROLE OF UTOPIAN THOUGHT

"*The quest for the ideal society, then, involves exploring a vast, dense, bewildering variety of terrains inhabited by some quite extraordinary beings*"
- Claeys, 2011, p. 14.

Utopian thought fulfils a variety of roles as mechanisms for release or escape from reality and as a source of ideas of new horizons (Goodwin and Taylor, 2009). Claeys (2011) in his survey of ideas of utopia stresses the importance of these alternative ideas as they bring encouragement and hope, when people are faced with difficult and impossible circumstances in their daily lives and environments. Utopia provides a safety valve or a way to dream of another possibility. Claeys infers that the human being is continually on a journey to improve his or her living conditions, changing what is not working and suggesting methods, principles and ways forward. Without utopia there would not have been the impetus to better people's lives to the degree that has seen a continuous push of boundaries to improve the reigning circumstances. Each time period has its utopia and ideas of the future. It can be argued that sustainable development is a similar utopian attempt at instigating change to further a necessary paradigm shift as humanity is at risk, if attempts to change or pursue a shift, fails. The futuristic thinker and writer, Bruce H. Lipton (2015) maintains that the civilization we are currently part of is dissolving, just as civilizations have emerged, risen and fallen in the past. That a new world order is emerging. However, this time, in the Anthropocene, humanity has an opportunity to make a conscious choice with regard to the design of the next wave, the next paradigm or the next civilization.

3.5.1 A history of ideas

The above ideas are supported by the view that utopianism is regarded as a beacon, guiding us towards a future, which may or may not be implementable. Lewis Mumford (1922/2008) sees utopias divided into two main groups of "escape" and "reconstruction". He views utopianism to be crucial as it is human nature to want to continually look ahead and strive towards development and betterment. This is supported by, for example, the research into the French author Louis-Sebastian Mercier's utopian vision of Paris in 2040 by Riika Forsstrom in "Possible Worlds" (2002), where the author suggests that utopian work is the driver that encourages

the thought processes leading to the creation of either utopias or dystopias. This reflects Harvey's view (2019) previously mentioned that we are at a cusp and must choose between a utopian versus dystopian future.

3.5.2 A threat

There are, on the other hand, a number of critics of utopian thought, who believe utopia to be unrealistic and impractical bordering on the naïve. Some view these visions as static and even dangerous. To support the critics, it can be argued that totalitarianism, for example, symbolized by fascist and communist dictatorships emerged from utopianism. They created visions of better societies and thrived for perfection advocating that people should be under strict control and obey the leaders. According to Popper (2014) the seeds of totalitarianism can be traced back to Plato's "The Republic" and it can be argued that dystopian ideas emerged from utopian thinking and reveal the dark side of utopianism.

When discussing ideas today that are deemed to be difficult to implement or naïve the adjective *utopian* is frequently attached to it. When an idea is called *utopian* it generally means that it is unachievable. However, for the purpose of this research, the focus has been on the constructive and positive aspects of utopia and the critical role it has played in imagining the sustainable society.

The more literature on the topic of utopia was reviewed the clearer it became how critical utopian thinking has been for the development of our societies. This is due to the impact it has had in the way of inspiring, advocating and bringing forth ideas and experiments to better societies as well as improve people's way of life. This aligns with sustainability as this concept has similarly caught the imagination of many pioneers, thinkers and entrepreneurs who have been inspired into action. Mumford states that "…. without the magnetic needle we should not be able to travel intelligently at all". A world without utopian thought is viewed as a world without a compass (Mumford,1922/2008, p.16).

3.6 UTOPIA AND DYSTOPIA IN THE 20TH CENTURY

There is a link between utopian theory and practice demonstrated throughout history where imaginative dream worlds and alternative societies have been

developed as purely theoretical constructs. These have subsequently inspired and influenced the thinking of people who have made change happen through experiments to realize utopian ideas.

The futuristic visions of the 20th century have included utopias as well as dystopias. The approaches to the creation of better societies were replaced by an increasing interest in technological as well as science fiction futures (Claeys, 2011). Some examples of the most influential writings from this period include both aspects are for example the classical H.G. Wells, "A Modern Utopia" (1905), Aldous Huxley's "Brave New World" (1946), "Island" (1962) and George Orwell's "Nineteen eighty-four" (1949). The more widely known environmental utopias or ecotopias are Skinner's "Walden Two" (1948), Ernst Callenbach's "Ecotopia" (2009), "Ecotopia Emerging" (1981) as well as the technological models by futurist Jacque Fresco "The Venus Project: The Redesign of a Culture (1995)" and "The Singularity is Near" by Raymond Kurzweil (2005).

In mid to late 20th century the shadow sides of industrialization, development and globalisation in terms of inequality, rise in poverty, destruction of the natural habitat, global warming and other adverse effects became more and more apparent. Writers and visionaries became increasingly inspired by these negative effects. Dystopian scenarios began flourished while utopia as a genre became unpopular (Miles, 2008; Goodwin and Taylor, 2009). According to Mannheim in "Ideology and Utopia" (1936) utopian ideas changed during the 20 century and new movements emerged. Mannheim predicted two strands of future utopianism. One was based on old socialist ideals, which he believed would only re-emerge if an underclass of people was created. The other strand was the rise of the intellectual classes and their visions, which would see new and different scenarios emerge as a result. Goodwin and Taylor (2009) picked up on the predictions set forth by Mannheim and viewed the new intellectual movements as a response to the political changes globally, combined with the development of technology and the rise of environmental threats. Several other movements emerged. Amongst those were fascism and Marxism, technocracy, feminism and communitarianism. The first two political ideologies rose and disappeared within a relatively short period of time. The other three are still developing and growing today (Goodwin and Taylor, 2009). Feminism is becoming stronger supported by focussed

attempts by governments in for example Scandinavia and Africa to include more and more women in governments, as researchers, on company boards and in politics. Communitarianism has grown and has become an integrated part of the way societies are developing. Social organization is now an important part of civil society's sustainable development initiatives and has become a symbol of the bottom-up movements, some described in the case studies in Chapter 5. Technocracy is an integrated element of the current dominant paradigm due to the technological development during the past century. Many future scenarios have focussed on technocracies and have taken the form of dystopias.
In Kurzweil's "Singularity is Near" (2005) robotics become part of everyday life and biotechnology creates eternal life spans. Murray Bookchin wrote a number of books dealing with technology and ecology issues i.e. "Post-Scarcity Anarchism" (1971) in which he outlines the opportunities of a post-scarcity society by creating a self-administered society based on abundant technological advancement.

The ideas are similar to those who believe that sustainability can only be reached through technological and scientific advance as in Jacques Fresco's "The Venus project" (1995), which is a top-down regulated, systemic approach different to the bottom-up community and grassroot movements. Many books have been and are currently written on technology, artificial intelligence or augmented reality, such as "Utopia for Realists" (Bregman, 2017), "The Network Society" (Castells, 1996), "On the Future" (Rees, 2018), "Time Travel" (Gleick, 2016). The pioneer James Lovelock's latest book "The Novacene: The Coming Age of Hyperintelligence" (2019) advocates AI (artificial intelligence) leading the next civilization.

Harvey (2019) writes about the emergence and proliferation of dystopias in the 1900's. He maintains that "only 13 dystopian novels were produced before 1900 but 145 in the 20th century and over 100 since the turn of the millennium, more than half of them for young adults" (2019, p.78). Harvey moves on to talk about the many dystopian movies made including a variety of "sub-genres". Currently many are produced as series on media such as Netflix, Viaplay and Prime Video. An example is the recent award-winning and highly acclaimed "The Handmaid's Tale" based on the book by Margaret Atwood (1985). The statistical numbers Harvey refers to are interesting in that they point to the

conundrum that people are thinking more in terms of a dystopian than a utopian future. This could by some psychologists be regarded as a course towards a self-fulfilling prophecy. Harvey (2019, p. 206) submits the researched fact that positive visualizations can turn outcomes into realities. Arguably this must equally be the case when visualizing dystopia or negative scenarios. Drawing a parallel to sustainability as the utopian ideal for the future it can be argued that the daily overwhelming input of visual dystopian material may hinder the process towards sustainability. Especially, as no imaginary positive visions for a sustainable future are being promoted at the same level and by the same popular channels of communication.

3.7 UTOPIAN EXPERIMENTS

The above has outlined the idea of utopia predominantly from a theoretical perspective to inspire and invoke change. Utopian thinking has inspired and provoked experimentation through development and realization of new and ideal communities, especially from the 17th century onwards. There was an increasing urge to create utopia and change what was wrong in existing societies. Many of the visionary concepts were no longer founded on religious principles, but became more and more secular, political and later as previously mentioned, technological. Added to that were the emerging environmental and ecological issues in the 2nd half of the 20th century. These new and expanded ideas became the foundation on which many small intentional communities were established and developed.

3.7.1 Cities as utopias

During the 18th and 19th century new visions for cities emerged and became models for utopian experiments. The city became one of most researched platforms for creativity and innovation in terms of utopian futures. Even today the city continues to catch the imagination of visionary architects and planners especially in terms of ideal models for sustainable development. This may be due to the fact that the city is viewed as a closed entity and more than half the world's population now lives in cities. "Creating Sustainable Cities" by Herbert Girardet (1999), "Utopia Forever, Visions of Architecture and Urbanism" (Klanten & Feireiss (ed.), 2011) and "Urban Utopias" by Malcolm Miles (2008) contain examples of

future development of cities. In this context Buckminster Fuller (1895-1983), an American pioneer, architect and systems theorist as well as Le Corbusier (1887-1965), a Swiss architect and designer must be mentioned, as they were well-known utopians in design and architecture in the 20th century (Claeys, 2011).

Buckminster Fuller dedicated his work to betterment of the human environment and promotion of sustainability (Buckminster Fuller Institute, 2019). Le Corbusier became known as a pioneer of modern architecture and was an inspiration for the profession of architects. Utopian city ideas have strong links to sustainability. Future visions have been an integrated aspect of the work of many architects and designers, starting with Ebenezer Howard's Garden City and Robert Moses, the master builder of New York.

3.7.2 Intentional communities

There were two schools of thought with respect to embedding utopian ideals in real life. One consisted of promoting technological advance and integrating societal structures. It can be argued that cities as described above were advocates of this school of thought, working with alternative resource flows in and around the cities as well as systems-thinking in terms of food, health, transportation etc. The other school of thought saw utopianism as the emergence of voluntary, small and idealistic communities, often established and tested as an experiment in a place and time context including the establishment of infrastructure and essential systems for community existence (Goodwin & Taylor, 2009). These communities brought together people who believed in the same ideals and who wanted to live with a set of specific principles and value frame whether based on religious beliefs, social or political principles.

The size of intentional communities varied from a few families to a few thousand members. Some were established and disappeared after a few years, some lasted several decades and some still exist today. Amongst the most widely known are the Quakers, the Levellers, Diggers and Ranters, the Mennonites and the Mormons, all US based. Some were founded on religious principles, specific ways of life and included very radical changes to the current societal order of that time, and some were politically orientated. Despite being closed communities each left legacies of different dimensions. Clarks shoes is a legacy from the

Quakers. The Shakers became renowned for their craftmanship and furniture designs. Many of these intentional communities were very powerful at the time and some still are today. The Diggers were advocates of common ownership of land and material wealth. They believed in free education for all and advanced innovative methods for cultivation of the land to increase food production. The Mennonites were also one of the earliest community-based and religious settlements as they were devout protestants and committed to peace. This could indicate that it is possible to create societies that are based on alternative philosophies to the existing, that the contemporary paradigm is not the only framework in which societies need to develop. It could also indicate that experiments with an infrastructure based on sustainability principles might be possible in the same way as these intentional communities designed their communities within an agreed set of principles.

When mentioning in Chapter 7 (Section 7.2.2) that lessons can be learned from the history of utopia this section is referred to as it probably describes one the most important utopian theory to have impacted our societies in recent times. Two pioneers, Francois Marie Charles Fourier and Robert Owen are regarded as the founders of British and French Socialism (Claeys, 2011). Charles Fourier (1772-1837), a philosopher and a socialist, was inspired by his contemporary Welsh colleague, Robert Owen, in his thinking and created experiments based on principles that are now described as socialist. Fourier's experiments or phalanxes, as he called them, were highly organized settlements for a diversity of classes and were designed to be as varied and satisfying as possible, based on individual desires and passions framed by values of equality and harmony. Fourier saw his city communities as replacements of the cities in France, spaced evenly throughout the country and with a critical mass of less than 2.000 members per unit for easy control and regulation (Miles, 2008). Fourier's mentor, Robert Owen (1771-1858), was a wealthy manager and social reformer. George Lockwood writes in his book "New Harmony" that the two utopians were "social architects fusing enunciation of social theories with actual experiments" (Lockwood, 1905, p.2). Owen developed his ideas regarding the place for work and educational activities in the same way Fourier did in the phalanxes, believing that the more pleasant the environment the better people would work, learn and develop. Owen's intentional communities were established first in England then in the US.

The socialist ideals have lived on and have impacted political theory and practice worldwide. Even though socialist ideas have existed since the time of Plato it was only in the 18th and 19th centuries that they formed a specific political movement.

Not all experiments to establish utopian settlements succeeded. History does not reveal to what degree the failures had a negative impact on the people and the surroundings or whether there were long term adverse consequences from the closures of the communities. It could be argued that without such experiments, nothing new would be tested and that failures are as important as successes. This has been the case with many pioneering attempts to create sustainable communities and cities where the learning has been valuable for the next stage of advancement.

3.8 SUSTAINABILITY AND UTOPIA

As the research includes assessing lessons learnt from utopian experiments, the next section explores utopia within a sustainability context from both a theoretical but mainly from a practical point of view. Settlements and intentional communities, which have been built on principles with an environmental, ecological and/or sustainability bias will be examined. If as mentioned earlier each period in history has had its own utopia then it is logical to suggest that sustainability is the utopia of the current period. This section therefore explores and presents the writings of authors who have developed theories on sustainable utopias and reports on attempts to establish sustainable utopian communities. Some of the authors referred to do not distinguish between sustainability and ecology. Marius de Geus, for example, uses both terminologies in the book "Ecological Utopias, Envisioning the Sustainable Society" (1999), where he advocates and describes the principles for a sustainable society, which he also calls an ecological society (the distinction between sustainability, ecology and environmentalism was discussed earlier in Section 2.4.2.

Many authors and utopians have imagined and developed theories on utopia that contain elements of sustainability and include environmental as well as ecological aspects. The most widely known include Thomas More ("Utopia",1516, 2010), Peter Kropotkin ("Fields, Factories and Workshops",

1899), Bernard F. Skinner ("Walden Two", 2005), Ernest Callenbach ("Ecotopia", 2009), William Morris ("News from Nowhere", 1993), Ebenezer Howard ("Garden Cities of Tomorrow", 1985), Aldous Huxley ("Island", 1962) and J.C. Hallman ("In Utopia", 2010). The following will document some of the more widely known ideas, viewed from a sustainability perspective.

3.8.1 Sufficiency and abundance utopia

According to De Geus (1999, p.21-22) environmental utopias can be divided into two main groups, the utopias of “sufficiency” and the utopias of “abundance”. Utopias of sufficiency advocated the simple life, back-to-nature scenarios and ideal places with respect for nature and the principle of living within the carrying capacity of the earth.

It is evident that the elements that make up sustainable development and indeed those of the 17 SDGs were desirable even in the 16th century and upwards. The ideals of sustainability are not new and seem to have captured the imaginations of utopians for centuries. Thomas More’s "Utopia" (2010) was one of the first models of an ideal society and included elements of what is now called sustainability. His utopia was a society with a focus on the good life. It was a good life, where waste was not an option, and where scarcity was dealt with as a serious matter. Nature was respected and revered, and people had a close relationship with the land. Gardens and agriculture played an important role in the utopian’s life. Clothing was simple and understated. The symbols of richness were for the outcasts. Simple living and fulfilment of basic needs prevailed in More’s Utopia. Community spirit and community living were part of daily life. Production served to satisfy the basics of life and the main aim was to have enough free time to engage in intellectual and non-material activities. Drawing a line from More’s "Utopia" to what many people desire in their societies today, parallels can be found including the wish for contentment, fulfilment and happiness as the three most essential components. Additionally, there are references to sustainability in terms of reduction of excess and focus on the non-material (More, 2010; Garforth, 2018).

Another utopia of sufficiency was that of Henry Thoreau, "Walden; or, Life in the Woods" (1995). His utopia was the back-to-nature model, a utopia of simplicity

and naturalness. Thoreau was an advocate of sustainability not promoted through an idea of an ideal society but rather through his idea of an individual's life, led as a model for the rest of us to follow. He was highly individual, a person who walked his talk and lived what he preached. Relating this to today's society Henry Thoreau could be called a pioneer, a visionary, and would be respected because he lived an authentic life. Simplicity was a key value. His ideas were forerunners of the slow food movement of current times, which started in Italy in 1982 by the politician Carlo Petrini, who set out to promote locally sourced foods and developed the slow-food and simple living movement in Italy and abroad (Steel, 2009).

A third well-known sufficiency visionary was William Morris (1834-1896), a utopian with a specific focus on the field of art and design. In his book "News from Nowhere" (1890) Morris described his ideal society, which was based on harmony, balance and beauty. Included in the equation was freedom and justice. Morris was a libertarian and a believer in art and beauty as essential ingredients in an ideal society. In this he differed from the ideas of his colleagues and was seemingly a main advocate for the love and belief in art as essential for intellectual and cultural development. He also believed in appropriate technology as a key driver in his land of utopia. Morris's sustainability aspect was embedded in his belief that nature was important but that it had to be managed and controlled as a garden landscape. Morris also advocated the simple and natural life and promoted values of production that included quality, durability as well as aesthetics (De Geus, 1999).

In the current world of sustainability, aesthetics, in the form of art and design have until the last decade not figured as an element of importance in the discourse. Art and design were viewed as superfluous and sometimes directly damaging and an integral part of the un-sustainable world. The disciplines were regarded as part of the cause of environmental degradation and as metaphors for the wasteful production of luxury goods and consumerism (Shedroff, 2009). Opposed to this, the more recent sustainability principles by William McDonough and Michael Braungart include both beauty and design as well as abundance. According to Michael Braungart beauty is in itself not a wasteful concept or value. It is needed to enhance lives and is an essential tool to ease as well as further the transition to sustainability (McDonough and Braungart, 2002).

The second main group of environmental utopias was called the utopia of “abundance”, where science and technology were regarded as effective tools for creating abundant lives. Scarcity did not exist in these utopias. It is worth noting that the thinking of this group concurs with current political objectives to continue economic development and the growth pattern as well as consumerism. To solve the environmental and climate challenges only science and technology need to be applied (Heinberg, 2011). Utopia of abundance included authors such as Francis Bacon ("New Atlantis", 2001) who advocated an ideal world based on scientific progress and Edward Bellamy ("Looking Backwards", 2000), who envisaged a more socialist society, where the citizens took turns to serve industrial advancement in order to have time for cultural activities. H.G. Wells ("a Modern Utopia", 2005) saw a scientific as well as democratic future, where education played a major part and where a world government was established. Many of the recent futuristic ideas and visions can be related to this group, for example Aldous Huxley’s dystopian "Brave New World" (1946), Orwell’s "Nineteen Eighty-Four" (1949) and later the utopian "Venus Project" by Jacque Fresco in the 90’s.

3.8.2 Ecological city utopias

In the context of cities as models for sustainability, it is valuable to examine one of the pioneers in this field, Ebenezer Howard (1850-1928). As explained in the previous chapter cities have caught the imagination of many current utopians, especially architects, planners and developers. Howard outlined in "Tomorrow: A Peaceful Path to Reform", written in the late 19th century a design for ecological garden cities where people live side by side with nature in perfect harmony. Howard was against private ownership of land which he believed was the root to unsustainable living through the destruction of the natural habitat, the rise of social inequity, the lack of human happiness and contentment. He advocated paying of rent instead of owning land and property. The rent covered the cost of the buildings and maintenance of infrastructures and might today be regarded as a life-long taxation. Ebenezer Howard’s ideas on economy were not unlike the new green economy proposals, which are part of the current discourse on changing the economic system (Gray, 2009; Howard, 1998). Howard's infrastructure in terms of flows of supplies and waste included ideas such as creating water reservoirs to create hydro-powered electricity and to supply fresh water. Waste was treated

and recycled and used on fields as fertilizers. Transport was minimized due to locally produced and manufactured food and goods. Howard based his ideas on creating cities for residents, who had a relatively high standard of living, and even though he did not promote growth directly, he did believe that a relatively high degree of wealth was necessary for people to live healthy and happy lives (De Geus, 1999; Goodwin, 2001).

It became clear for a number of city mayors in the 1960's and 1970's that should the adverse effects of industrialization be diminished, and sustainable development initiatives be put in their place the cities were the ideal places to start. One such initiative is the C40 network of cities worldwide. The network consists of 94 megacities (cities of more than 10 million inhabitants) and a few model cities such as Copenhagen with approximately 1,3 million inhabitants. "C40 is a network of the world's megacities committed to addressing climate change. C40 supports cities to collaborate effectively, share knowledge and drive meaningful, measurable and sustainable action on climate change" (C40, 2019). The website for a conference in Copenhagen where city mayors congregated to discuss 2030 targets in the autumn of 2019 stated: "9-12 October 2019, will showcase examples of how cities are already delivering on their strong commitments and accelerating the bold climate solutions needed for a sustainable, healthier, resilient and inclusive future. The 2019 Summit aims to build a global coalition of leading cities, businesses and citizens that rallies around the radical and ambitious climate action our planet needs" (C40, 2019).
The mayors announced at the summit that as governments were not doing what was required, the network's members agreed to create environmental and economic equality and justice in the megacities in the world through the Global Green New Deal. From these statements it is evident that many cities have become engaged in sustainable development and have been inspired to act. Inspirational mayors have been the drivers for change in cities since the 1960's, where the mayor of Curitiba in Bazil, Jamie Lerner, was one of the first to introduce sustainable development initiatives (Curitiba, 2018, Suzuki et al, 2010).

3.8.3 Ecotopia

Some writers produced ideas of entire sustainable societies, called ecotopia. Ernest Callenbach's "Ecotopia" (1975) belongs to such writings and is essential literature in the context of sustainability, as it is one of the most detailed as well as recent

complete description of a utopian model for a sustainable society. According to Harvey the book is “hard to beat as a detailed fictional account of a circular economy in action” (2019, p. 211-212). For that reason, an account of the main ideas of the society is outlined in the following section.

Ecotopia is a country, which covers a large part of the US after having split from the rest of the country. It encompasses the states of California, Oregon and Washington. The change of the society from being one belonging to the *traditional* world outside to creating the new order is transformational and system based. The new society is built on an infrastructure that is ecological and includes radical changes to political, educational and economic aspects to include flow-orientated and production-based systems. Ecotopia is an ecologically stable-state society where all policies and decision-making are taken with regard to the impact it has on the natural habitat and living systems. There is much social control, however, and a strong moral sense of what people can and cannot do. Agriculture has been changed, whereby all waste products are recycled, and no chemicals are needed or used in the production of food or other agricultural produce. In terms of industrial production consumer goods that are harmful to the environment are no longer made. Second-hand furniture and clothing are the trend of the day and recycling is part of daily life. There is no pollution of air, water or soil. Energy supplies have been changed from fossil fuels and substituted by a variety of alternative energy systems. Large cities and skyscrapers have been broken down and transformed into smaller units of communities interspersed with gardens, forests, fields and orchards. Infrastructure in terms of transport and mobility provides *free* transportation in underground systems, electric busses as well as magnetic levitation trains. These speed through the landscape with up to 360 miles per hour thereby rendering travel by plane obsolete. Families of 5-20 people replace the 4-unit family and one can choose to stay in one family or move to other family units. The working hours are short and cultural and artistic activities are as in William Morris’s utopia, encouraged. As with previous utopias the focus is on maintaining a society in balance, the natural habitat is respected and preserved, and the human footprint is minimized.

The difference between Callenbach’s "Ecotopia" and other sustainable utopia is the fact that Callenbach has taken an existing place and transformed it into a

sustainable society. He has changed and adjusted it to fit a new framework using the existing infrastructure. Callenbach does not denounce technology but uses it to serve society and people rather than making it dominate life, as opposed to many futurists who sees technology as the main driver and controller of future societies. It can be argued that "Ecotopia" could be a model for the sustainable society today. Many initiatives and developments appear realistic. Garforth claims in her book "Green Utopias, Environmental Hope Before and After Nature" that there is a “green utopianism” emerging, sometimes found as glimmer of hope in the world of grim scenarios. She proposes that seeds for a "good" Anthropocene already exist (Garforth 2018, p. 3/160).

The above brings the exploration of utopia in this chapter to the final section, the section on practical utopian experiments. The following will outline and examine some of the sustainable utopias that have been realized during recent times. Each model has a narrative and its own perspective on the sustainable society whether it is a community, a housing estate or a city.

3.9 UTOPIAN EXPERIMENTS WITH A SUSTAINABILITY BIAS

As the second research question of the thesis focuses on the enquiry into lessons learnt from current cases it was considered valuable to look at historical attempts to establish sustainable entities whether these were intentional communities, villages or similar units. The aim was to assess whether the lessons learnt, positive or negative could inform the process of implementing sustainability in current societies. In doing so also examine the barriers to such engagements.

Many experimental utopias were established or attempted from the 17th century onwards. The previous section mentioned the forefathers of socialism, Robert Owen and Charles Fourier, who established a number of communities and settlements based on their ideas of the ideal society. The main contribution by Owen and Fourier was their role in founding socialism and the cooperative movement which has impacted most societies throughout the world in a positive direction (Goodwin and Taylor, 2009). Ebenezer Howard’s idea of garden cities was also advanced to a stage, where the idea could be put into practice. Howard founded the Garden City Association in 1899 to generate enough capital to build the

Garden City as a master blueprint and model for a series of satellite cities housing 250,000 people. The Garden City Association still exists, now called the Town and Country Planning Association, said to be the oldest environmental charity in the UK. Letchworth, to the north of London was an attempt to build a garden city, which was inspired by Edward Bellamy's "Looking Backwards" (2000-1887; Miles, 2008; Howard,1902).

A variety of other experiments took place during the past century in the form of movements, settlements, communities, villages, cities or parts of cities. As with the sustainable utopias these later experiments can be grouped and categorized. The main two groups belong to those mentioned earlier, the utopias of sufficiency and the utopias of abundance. The sufficiency-based experiments were founded on deep ecology principles with a strong back-to-nature element much like the philosophy of Thoreau. This group encompasses hundreds of relatively small settlements and communities with less than 5.000 residents to be found on all continents around the world. Most see their community as separate from the mainstream, having embraced radical changes in lifestyle in accordance with their philosophies and principles (Miles, 2008).

3.9.1 Sufficiency experiments

The group of sufficiency communities includes most grassroots communities such as Aldo Leopold Wilderness in New Mexico and Twin Oaks in Virginia, US (Hallman, 2010) and communities inspired by B.F. Skinner's "Walden Two" (1948). In addition there are spiritual communities like Findhorn in Scotland, founded in the 1980's (Findhorn, 2019), the Brahma Kumaris centres around the world, established in 1937 (Brahma Kumaris, 2019) (See case 2, Section 5.4), Auroville in India, established in 1968 (Auroville, 2019) as well as the Ecovillage Network, stablished in 1999 (Dawson, 2006). In addition, social/political communities like the kibbutz settlements in Israel can be included in the sufficiency group. The kibbutz started as a socialist and religious utopian community. The first was established in 1909 and was based on and inspired by the writings of Theodor Herzl (1860-1904) and the book "The Jewish State" (1896/1988). Herzl was the founder of Zionism and created the idea of an ideal Jewish state as a socialist paradise or a utopia of co-operation.

Most of these still exist and are thriving. Many have retained their specific principles and sets of values and have made a positive impact on people outside of the communities. The kibbutz communities contributed to the building of Israel. The Brahma Kumaris centre in India offers social, health and other services to the surrounding regions including solar energy. Other BK centres around the world provide free courses and training in leadership and personal development for the local areas. The Ecovillage Network is highly regarded and respected by spiritually and ecology-minded people globally. The Network has created approx. 450 villages around the world and has developed an extensive global education platform for refugees and disadvantaged people. Both the kibbutz as well as the Ecovillage Network are explained in more detail in the text below. Brahma Kumaris is described in Chapter 5 (Section 5.4) Many other communities could be included. The examples of successful experiments have had a marked influence on people's lives and are indicative of the many initiatives launched as a result of visions for a better future.

The kibbutz

The kibbutz is a utopia, as it grew out of a wish and need to create the ideal community. It developed a radically different infrastructure for all levels of activities within the community. Memberships ranged from 40 to more than a 1,000 people, but most settlements today consist of approx. 500 members. The master plan for the kibbutz was designed in great detail. Nothing was faraway and transport activities consisted of cycling, walking or electric minibuses. The kibbutz was democratically ruled, and elected committees made the day-to-day decisions. Hard work was part of the ideology and many claimed, that it was the-hard-work-ethic which was key to transforming the barren land of Israel into fields, gardens, orchards and other areas for food and produce. Men and women were treated as equals and the children were brought up in kindergartens. Work was based on rotation principles. In terms of sustainability many kibbutzim have today changed their energy systems from fossil fuels to solar cells, recycling of waste and water as well as changing agriculture to organic production. The unique aspect of the kibbutzim is the fact that the settlements were and are part of the mainstream, whereas other utopias or intentional communities often have set themselves apart from the mainstream as a reaction to existing systems (Rubinstein, 2007; Claeys, 2011).

Ecovillage Network

Another key example of a co-operative utopia of sufficiency is the Ecovillage Network. This is a worldwide network of likeminded people who have created a number of sustainable village communities, with the main aim to create "a new culture and to heal the earth" (Ecovillage, 2019). The movement is based on a philosophy that advocates living on the earth with respect for and in balance with all beings and natural systems. They are a model for how a number of sustainable utopian experiments have been implemented in the 20th century through a shared philosophy and vision, similar to the kibbutz movement and similar to the social settlements of Robert Owen. The ecovillages were built from a variety of designs, that were adapted to the natural environment and climate conditions of each place. The villages are found on all continents, from Mexico and Columbia to UK, Norway, Denmark, Italy, Germany, Australia, India and South Africa. The elements that the network has in common with other sustainable utopias is firstly that the philosophy is very similar regarding production and growth, governance, economy, education, working and living conditions as well as social aspects. Another element is that the infrastructures are markedly different from mainstream society. In the ecovillages low technology is used as an integral part of village living. As the aim is to be in balance with nature and each other all activities are geared towards achieving this.

Arcosanti

A well-known but different utopian settlement to the above is Arcosanti in Arizona, US. It was one of the first small recent utopian villages created by an American /Italian architect, Paolo Soleri in 1970. He developed a building programme and a plan for a village of 5,000 inhabitants. The goal of Paolo Soleri was to experiment with architecture and ecology, and he invented a new concept for a building design called arcology, which is a combination of architecture and ecology. This was an attempt to demonstrate how a town could be built with a small ecological footprint. The principles Soleri advocated were the combination of social activities, minimal resource use, accessibility in synergy with the natural habitat. The design was organic, detailed and aesthetic, similar to Howard Ebenezer's Garden City. Paolo Soleri's architectural style was futuristic. The design of his buildings was similar to the widely known British high-tech architects, Future Systems, and was based on bionic architecture with a strong relationship to

nature. As Howard, Soleri designed gardens, orchards and fields for agricultural production. Arcosanti, however, never became the settlement it was intended to be, and the development stranded, mainly due to lack of funding. Today it is a tourist attraction with only a few families living there (Miles, 2008; Soleri, 1984).

Apart from attempts to establish communities and villages with a utopian vision other experiments started to emerge in the late 20th century and early 21st century. Some were orientated towards the city and city-living and others consisted of plans for large scale developments.

3.9.2 Abundance experiments

Other experiments belonged to the abundance group and were experiments with the aim to establish societies in balance with the carrying capacity of the earth through the utilization of science and technology. Many new ideas and scenarios belong to this group as the idea of realizing sustainability through science and technology became increasingly prevalent.

Included in the category were most mainstream experiments. Many emerged from architects', designers' and engineers' drawing boards to create high-tech sustainable environments for town or city residents, whether in a village, part of a city or in an entire city. Examples of these are the New Songdo business district in Seoul, South Korea; the abandoned project to create the sustainable city Dongtan in China and the sustainable city of Masdar in Dubai, UAE. What links the examples is the fact that the main aim for their establishments was to reduce the negative environmental impact by greening the city and by enhancing the living and working environments for the residents. The changes to infrastructure were carried out with the aid of technology in areas such as transportation, energy, water and waste flows through the use of bioenergy, solar and wind-power and introducing closed loop systems or clusters where waste products from one source was utilised by another (Section 2.9.2).

As the sustainability discourse has become more and more mainstream the ideas and concepts for the future sustainable society have become equally so. It is important to note that numerous attempts were and are made to drive societal, sustainable development initiatives. However, many initiatives failed

such as Dongtan sustainable city development, which was stopped due to faulty planning, too short a time schedule and lack of funds. Others did not turn out to fulfil the intended goals. The new Songdo district was intended to be inhabited by families with children. However, this did not materialize and today the main occupants in the district are businesses. The Masdar city development suffered an economic setback during the recession in 2008-9 and the plan to complete the project was delayed (Hallman, 2010).

3.10 SUMMARY

Some researchers on utopia claim that the emergence of utopia is grounded in philosophy. The ideas were "philosophies, fantasies, rationalizations, projections, images and opinions in which people pattern their behaviour" (Mumford, 2008 p. 8). Others maintain that it is essentially human nature to reflect on and address issues regarding humanity and evolution, and that scholars from a diverse spectrum of disciplines have through history been engaged with the question of society, its betterment and humanity's place within it. The same could be said of development theories as mentioned in Section 3.2 but where these advocate reform of existing systems utopian theories advocate the replacement of the systems.

It is evident from the literature review on utopia that the role and the effect of utopian thought have had a critical impact on societies throughout time. It is considered by many to have been conducive to advancement, politically and socially - and in the 20th century also environmentally. It becomes clear from the investigation that it is the negative aspects of society and human conditions, that have birthed utopian thinking either as an escape from an undesirable reality or as an attempt to change what was unacceptable or unsatisfactory. There has been a continuous strive for betterment in terms of the physical environments and the pursuit of happiness. Reflecting on the way people live and operate appears to be an integrated and enduring part of the human condition. There will always be people who will develop utopian ideas or models for alternative places or suggest radical changes to existing societies. It is therefore not surprising that so many attempts to translate the theories into practical solutions have been undertaken whether these have been successful or have ended in failure.

3.10.1 Sustainability as a utopian construct

Utopianism can thus be regarded as a source of theories on societal change that goes beyond the present, engages in alternative thinking and inspires to redirect and create profound change in order to improve human wellbeing. The examination of utopia therefore gives rise to reflections on the concept of sustainability, its origin, essence, development and progress and whether it can be considered a utopian construct.

Similarities

The sustainability concept shares similarities as well as differences with utopian ideas. In terms of similarities the definitions, background for emergence and practicability can be noted. The definition of utopia is an ideal place, different from the existing, created either as an escape from reality or as a proposal for reconstruction of society set in a specific time and place. It can be argued that sustainability has the same ideal, that a state of sustainability is an ideal state. The foundation of a sustainable community or society would be one that is based on principles that differ from those of existing societies. To achieve a state of sustainability requires changing the current dominant paradigm. Living within the carrying capacity of the earth cannot be done through business as usual.

In terms of reasons for the emergence, sustainability can similarly be regarded as utopian: to change what is not working and reduce human suffering. Sustainability aims to rebalance society, to make sure that all of humanity have their basic needs fulfilled, to use, share and not deplete resources and to be able to live a dignified life. The essential goal is human wellbeing. This focus is supported in the last section of Chapter 2 (Section 2.11.3) where the emergence of happiness indexes, wellbeing indicators and similar measurements are closely connected to achieving sustainability. In that capacity its goal matches that of the utopian vision.

Sustainability is a worldwide initiative, systemic, universal, interconnected and addresses all of humanity. No large-scale society has as yet reached a sustainable state and attempts to embed the ideals in real life have mainly been confined to small scale undertakings by civil society ranging from individual citizens, communities, villages, municipalities, cities as well as organisations, businesses, education establishments and so on. This relatively small scale of practical undertakings is

similar to utopian experiments, where the small scale has been a practical necessity for realization. The research points to an absence of large-scale successful undertakings.

Differences

Utopian ideas were created by individuals who thought of alternatives to unsatisfactory ways of life. Sustainability, on the other hand, was brought forth as a conscious initiative and came about as a joint effort by the members of the Brundtland Commission in 1987. It happened in a different context to the individual theories of utopia and was based on years of research. The concept of sustainability was not communicated initially as an inspiring narrative to capture people's imagination. Instead it can be argued that the lack of imagined scenarios of a balanced and sustainable world may be a barrier to implementation initiatives. This is supported by the following consideration. According to De Geus (1999) as well as Claeys (2011) one of the barriers to the implementation of the sustainable society is the fact that as a result of the current drive towards economic and political development, the dreaming of utopia, the ideal place, has been forgotten. Instead there has been a focus, consciously or unconsciously on creating an array of dystopias. It is as though the interest or hope for a better world has disappeared from human imagination and a form of hopelessness or negativity has taken its place.

3.10.2 Conclusion

A consideration that may be inferred from the literature on utopia is that human beings intuitively and instinctively know more than they/we have been accredited for. Research into utopias of the past points to the observation that many utopian extrapolations of future scenarios by individuals can be said to be similar to those developed today based on years of research. The ideas and concepts outlined in past narratives about new societies often include the same elements for transition to sustainability as those promoted today including social and environmental issues. Writers, philosophers and other utopians referred to in this chapter from Plato onwards have projected visions for future societies. They include elements that matches those of today such as issues of equality, equity, land and resource use, working environments, food production, lifestyles economy and many other critical and essential societal perspectives. It can be argued that many utopian theories from as far back as Plato's "The Republic" are embedded in our societies today, although the degree to which they have succeeded can be

discussed. Utopianism will continue, and sustainability and sustainable development are essential ingredients in the search for "the nowhere (ideal) place", the "dream state" or "paradise" on earth,

The evidence gathered in this review points to the following:

- Sustainability and sustainable development can to a large degree be regarded as utopian constructs mainly because they imply creating a radical societal change from the current to a new and *better* paradigm.
- Drawing from the experience of practical utopian experiments it has become clear that a utopian vision cannot be achieved in a short time span whether in relation to establishing new intentional communities, new types of city structures or developing or promoting political movements such as socialism. Ideas take time to grow and mature.
- That small scale utopian experiments have had greater success and continuation than large scale efforts, mainly due to the ability to control, direct and finance smaller initiatives.
- That visionary leadership supported by sufficient funding and sufficient time for development and implementation is important.
- That the human perspective is crucial when developing new radical initiatives.

CHAPTER FOUR
METHODOLOGY

"At its best, the case study provides the most vivid, the most inspirational analysis that an enquiry can offer."
Thomas (2011: Preface).

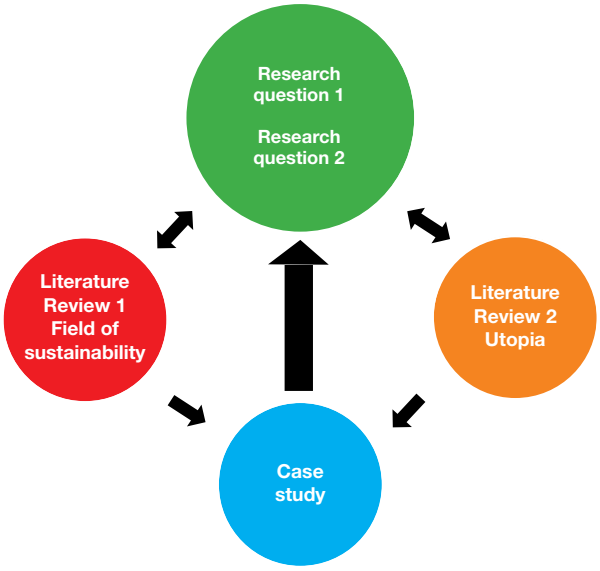

Fig. 4.0: Research design diagram (Kurlansky, Blincoe)

CHAPTER 4: METHODOLOGY

4.1 INTRODUCTION

The purpose of this chapter is to outline the research design undertaken to address the two research questions.

Research Question 1: What are the barriers to achieving sustainable development in the current dominant paradigm?
Research Question 2: Can practical examples of implementing sustainability indicate ways in which a state of sustainability can be achieved?

The chapter discusses the overall data collection and data analysis activities employed to appropriately address the enquiries and meet the aims and objectives. It highlights methodological issues regarding the chosen and alternative methods as well as their limitations. It is divided into the following sections:

- Research design: The methodology and why the particular research design was chosen.
- Secondary research: Secondary data collection, collating and analysis. This includes the specific areas covered, the focus and perspectives.
- Primary research: Primary data collection, collating and analysis.
- Ethical aspects: The elements and principles followed.
- Bias: The bias encountered and how it was dealt with in the case study.
- Validity and reliability: How these issues were addressed.
- The case: A short description of each of the units: an island, a faith community, a corporation.
- Summary.

4.2 RESEARCH DESIGN

To address the research questions a qualitative research design was developed that supported the exploratory and explanatory nature of the enquiry. The methodology consisted of an overall qualitative approach as it aimed at gathering an in-depth

understanding of sustainability, utopian theories as well as of current practical experiments. A research approach using secondary data collection methods only was not sufficient but was considered relevant for the first part of the investigation. Fig. 4.1 gives an overview of the research fields and their interrelatedness. The knowledge drawn from each field adds to broadening the understanding of the research findings.

RESEARCH DESIGN DIAGRAM

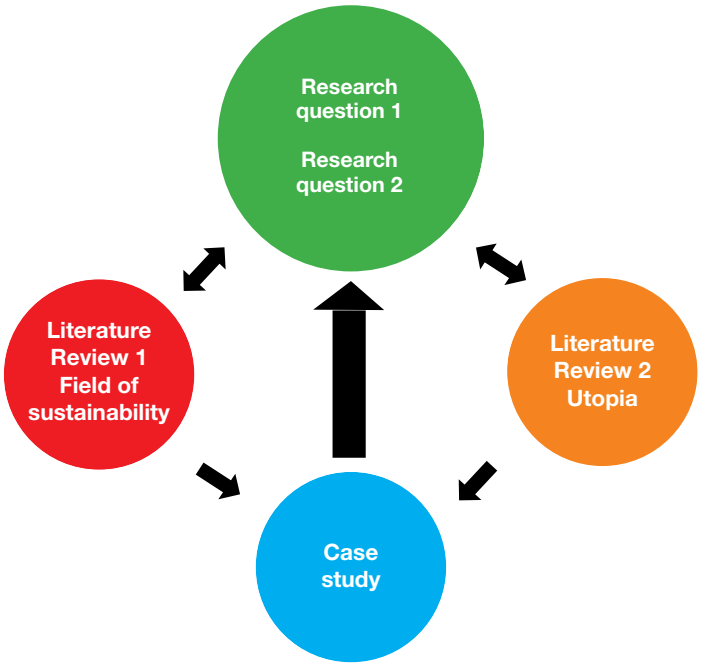

Fig. 4.1 Research design diagram of secondary and primary data flows (Kurlansky, Blincoe).

The first part of the investigation encompasses an examination of the emergence and nature of the theoretical construct of sustainability and its applicability in society and is documented through the information and knowledge gained from existing research and other secondary data sources. The second part of the investigation includes an examination of utopianism to assess whether the construct of sustainability is similar to utopian theories of the past and whether, if affirmative, this can offer a deeper understanding of the essence of sustainability and of the barriers to its realisation. The enquiry also examines real-life utopian experiments in order to assess the results of such undertakings. The third part of the investigation consists of primary research comprising a multiple case study that examines three real world contemporary initiatives. Data collection is conducted through open-ended interviews. The analysis

consists of applying a general strategy for explanation building and conducting a cross-case comparison and synthesis of the data.

4.3 METHODOLOGY

"*...one-third of the empirical studies that are widely influential in the social sciences (as judged by citation counts) exploit a case study format.*"*(Gerring, 2017, p: 25)*

When undertaking social research, a number of methodologies within the field of qualitative research are available spanning experimental, historical, statistical, survey research and case study research. Each of these methodologies are relevant for particular enquiries. Through an examination of these methods a case study approach was chosen as the main methodology with which to address the research questions. The arguments underpinning this choice are discussed in the following text.

4.3.1 Case study

Case study research can be found in most disciplines in social research, in natural sciences as well as in the humanities. Yin (2018) points to 15 academic fields in which case study research has been applied. Case study research is a methodology that has for example, been applied in political science research for many decades where it has gained influence focusing on, recording or comparing units of interest in countries, regions, societies, interest groups, organisations and events. A case study may consist of one or a few units as well as multiple units comprising small or large analyses. Examination of data collected in case study research consists of methods such as cross-case or within-case analyses, and sources of data derive from surveys and interviews as well as from secondary data material. A case study is a research methodology that comprises an intensive study of a phenomenon in one case or in a small number of cases that can inform us of the possibility to find similar phenomena in larger population of cases (Gerring, 2017; Hamel,1993). This points to one of the justifications for choosing the methodology in this research: to examine a few cases known to have engaged in sustainable development initiatives. Comparing, assessing and outlining the processes and outcomes (the phenomenon) of the activities and pointing to the possibility that the results may be used as a framework for other situations and contexts with similar aims and goals. (See Section 4.7 and Chapter 5).

"How" and "why "questions

Case studies are the preferred research methods in contexts when, according to Yin (2018, p.13) “how” and “why” questions are being addressed. When the researcher or investigator has “little control over events” or when “the focus is on a contemporary phenomenon within a real-life context”. These conditions applied to the case study undertaken. First of all, it was important to know from the practical cases *how* the process of implementing sustainability was undertaken, "how" the ongoing progress was managed and "how" it unfolded. Equally important was the "why" question. "Why" were the projects initiated with what vision, mission and goals? The why's and how's were essential in addressing the questions and finding solutions. In addition, the researcher had no "*control*" over the "*events*" that had taken place and had led each case to their current state. The research was exploratory and explanatory, due to lack of prior in-depth knowledge of the units chosen. An important aspect was the focus on "contemporary" and current events set within a "real-life context". The contemporary and real-life setting contributed to the generation of new and original knowledge in the investigation and enhanced the relevance of the thesis in the current discourse on sustainability (Section 7.6).

Analytic generalizations

Yin maintains that the goal in case study research is to "expand and generalize theories (analytic generalizations)" (2018: p.20). George and Bennett (2005) claims that the traditional way of looking at case study research is as a “subset of qualitative methods that aspires to cumulative and progressive generalizations about social life and seeks to develop and apply clear standards for judging whether some generalizations fit the social world better than others” (2005, p.19).

It can be argued that these arguments fitted well within the context of this enquiry even though as explained later one of the criticisms of case study methodology is its generalization difficulties. However, as a case study is undertaken to explore a phenomenon that may explain similar phenomena in other situations the cumulative and progressive insights of the examination of three cases were considered essential when developing the framework for a sustainable development process (the phenomenon) in other contexts. The generalization was thus analytic (expanding on and generalizing theories) rather than statistical, and therefore justified applying the case study approach.

4.3.2 Generation of new knowledge

Supporting the choice of methodology were the views of several other researchers on case study research who claimed that the case study method was specifically appropriate when new knowledge was being generated. George and Bennett (2005) stated that case study research was useful in the development of theory. This was supported by Thomas (2011) and Gerring (2017), who stressed the importance of new insights as a product of a good case study. These views were relevant to this particular research approach. The aim was to examine real world examples to gain insight and understanding of the events that took place adding new knowledge to the field.

4.3.3 Criticisms of case study research

A number of researchers view case studies to be a less sought-after form of enquiry than for example surveys and experiments. This is mainly due to the concern that the case study process can more easily lack rigour and discipline than when using the other methods. Statistical research f. ex. includes a variety of set procedures to be followed to generate the required results, whereas in the case study the researcher has to make a number of individual decisions in terms of what strategy and analysis to apply and how to apply them. It is argued that therefore there is a greater chance of bias and lack of validity in case study research. The quality of the investigation rests with the researcher to a much greater degree than in other methodologies.

Another criticism is the fact that scientific generalizations cannot be made in a case study as mentioned on the previous page. The reason being that it is not feasible to generalize from one single case. Instead, as many case studies consist of multiple units, cross-case analysis can be applied with the aim to provide analytical or theoretical generalizations rather than statistical generalizations (Yin, 2009; Thomas 2012). In this case study the aim was to find out why and how processes were undertaken. Cross-case comparisons were undertaken, common denominators were observed, and conclusions were made with the regard to the usability of the findings. The case study is a non-experimental research method and is therefore not about "finding causes" but is engaged in making connections, gaining insights and developing narratives. It cannot be compared with statistical research but has its own merits in understanding the occurrence of events and the processes that lead to the results rather than looking for the causes that make them happen.

A final point that was noted relating to case study research was the postulation that case studies are too time consuming (Feagin, Orum and Sjoberg,1991). Traditionally case studies have been lengthy and extensive. Today case study methods vary. Ethnographies often include field research which may require an extensive amount of time to conduct and may result in lengthy narratives. However, case studies can take the form of enquiries based on interviews using telephone or the internet that are less time consuming. The study in this investigation fits within the constraints of the thesis requirements and is not too lengthy. There were three units in the study. The amounts of interviews were the same for each unit and were limited in number and size. This did not cause the enquiry to lack depth but was designed to be manageable as well as sufficient in order to allow for new reflections to be made and conclusions to be drawn (Bryman, 2012).

"*The essence of a case study, the central tendency among all types of case study, is that it tries to illuminate a decision or set of decisions: why they were taken, how they were implemented, and with what result*",
- Schramm, 1971, from Yin, 2018, p.4.

The discussions of the case study methodology frame the choice of the particular method chosen to conduct the investigation and address RQs in this research. The main goal of the case study approach was to create an analytical framework rather than producing a statistical generalization. The quote above enhances the argument.

Some decisions had to be made such as whether single or multiple units were relevant. Bryman (2012, p.69) points out that the difficulty with a single case study is that it hinders the potential to “yield findings that can be applied more generally to other cases”. Yin (2009, p. 20) states: “Case studies can cover multiple cases and then draw a single set of cross-case "conclusions.” These statements fitted with the particular research approach and aim. It validated the decision to choose a small purposive sample for a comparative study also in order to limit the scope of the thesis but still enable a thorough investigation of each of the units (George and Bennett, 2005; David & Sutton, 2011).

4.3.4 Case selection

"*Selection with some preliminary knowledge of cases.....allows much stronger research designs; cases can be selected with a view toward whether they are most-likely, least-likely, or crucial for a theory...*"
- George and Bennett, 2005, p. 24.

As a transition to sustainability involves many diverse factors and agents the aim was not and could not be to find a recipe that suited everyone and every community. As the case study can inform, give insight and find common factors across the examined units the research enquiry aimed to explore diverse sustainable development processes to discover whether key common elements or lessons could be learnt from the undertakings. Existing intentional communities encompassing organisations, companies, municipalities, villages or cities engaged in sustainable development initiatives were examined to find the appropriate units for investigation. It was decided to investigate three known, existing units: one community, one company and one organisation.

The main considerations in the selection process included:

- Diversity. Choosing units that were explicitly different.
- Known engagement with sustainable development initiatives.
- Being publicly known to have achieved positive results from sustainable development initiatives.
- Public exposure and credibility. Being known nationally and/ or internationally.
- Accessibility. Practical considerations with regard to contacts and conducting interviews.
- Consent. The units had to want to take part in the interviews and be prepared to read and comment on the results.

The units selected for the study contained elements of diversity as well as elements of similarity. They were markedly diverse in nature, vision and mission, aims and objectives. They were different in type, size and geographical placement. The similarities included having public profiles, being known to have been engaged in sustainable development for a number of years and the fact that the results of the development process were positive as well as publicly accessible. Another

determining factor for selection included the accessibility to interviewing people of similar status and having similar roles in the development process in each case. The case selected consisted of a company, a faith organisation and an island. It can be argued that the examination of more cases could have added to the validity of the findings. For reasons mentioned previously it was decided to limit the sample to three cases that were known both officially (UN and national recognition) as well as by the researcher to have engaged in the process of integrating sustainability aspects internally. Mason (2010) argues that the concept of saturation is the most important factor to think about when mulling over sample size decisions in qualitative research. In this research it was necessary for validity purposes due to the sample size that the cases chosen adhered to certain criteria such as those listed above.

The sample was purposive as the researcher had many years' experience working with sustainability and sustainable development and possessed knowledge of the field and knew actors in the field. This aspect was relevant due to the experience that if the cases had to be selected based on website content the sustainability data might have been misleading. There is evidence that organisations and companies claiming to be sustainable, are in fact not. Greenwashing is prevalent in the field of sustainability, where many companies write about green initiatives and principles which, when examined closely, either relate to a secondary or small area of the company's activities or constitute intensions rather than real-life initiatives (Futerra, 2011).

The attributes of the selected cases included the following elements:

- The units had been engaged in the sustainability process for 10-20 years in all three instances.
- The units were success stories, although none of them could be defined as having achieved 100% sustainability.
- They were examples of drivers of the sustainability agenda locally, nationally and internationally.
- Sufficient information existed with regard to their contexts and nature.
- The researcher had some prior knowledge of the cases.
- The researcher had access to the people or the teams that were directly involved with driving the implementation process.

4.3.5 Data collection

There are several sources for data collection in case study research, both primary as well as secondary data. As mentioned at the beginning of the chapter the collection and review of secondary data were essential in creating the right framework and context for the investigation. The following sources of evidence were examined:

- articles relating to the cases
- annual reports
- publications
- websites
- newspaper articles/reports.

The primary source of data was derived from a series of open-ended interviews with key people in each case involved in the sustainable development processes. The data was presented in a case study report as three narratives in Chapter 5.

4.3.6 Interviews and interviewees

Gerring (2017) maintains that there are several elements to be taken into account when choosing the interviewees:

- Relevance is important in terms of being able to address the theoretical interest.
- Proximity is important in terms of the interviewee being in a position to have general knowledge of the topic in question.
- Importance of diversity is stressed in terms of exemplifying different views, perspectives and experiences.

The interview samples in the case study included these elements. The main source and method of the investigation consisted of open-ended or semi-structured focused interviews to facilitate a natural flow of information relating to the data to be collected. This allowed for a more in-depth investigation encapsulating nuances and personalities. This was important as the interviewees were likely to have experienced the process of transition to sustainability differently due to their specific perspectives, roles and contexts. Open-ended or semi-structured interviews made it possible to document aspects and nuances of the topic which otherwise might have been lost. They also allowed for further questions if the replies were considered significant and if

further exploration was deemed necessary (Bryman, 2012; Foddy, 1993; Thomas, 2011).

It was decided to interview three people within each case. The interviews were based on the same sets of questions. The semi-structured approach was chosen due to the aim of attaining different perspectives on the implementation process. Even if the framework and guidelines for the interview paths were set beforehand, it was possible for the interviewees to expand on some topics more than on others. Each interview lasted one hour with a little flexibility on each side, give or take max.10 minutes. This period was chosen based on a pilot interview carried out before the case interviews. It was originally thought that this timeframe would be too controlled. However, one hour per interview turned out to be a suitable time to complete the discussions covering all questions, even though the leaders or managers of the processes were found to have more to talk about than the coordinators and administrators. The interviews were not hurried but were relaxed and allowed for the personal accounts of what was experienced and perceived to have taken place.

"*In comparative case studies, structure and focus are easier to achieve if a single investigator not only plans the study, but also conducts all of the case studies*"
- George and Bennett, 2005, p. 71.

The researcher was the sole investigator and acted as the interviewer. This was possible in terms of workload and time constraint due to the small sample size.
The advantage was getting a more in-depth insight into the elements that made up the transition process in each case, including observing the nuances of speech and the personalities of the interviewees. The disadvantage was the greater risk of internal bias having one and the same person conducting all interviews. To lessen the degree of internal bias the questions, time, style of interviewing, transcription and subsequent editing followed the same process throughout the investigation (Section 4.5).

4.3.7 Collation and analysis

"With the multiple case study, the focus is unequivocally on the phenomenon of which the case is an example: the focus is on the object"
- Thomas, 2011, p.141.

Data collation and analysis dealt with making sense of the data and collating it into a form that could be analysed in order to address the research question. In this instance to determine whether practical examples of implementation processes of sustainability from three different cases could indicate key common factors in the processes. Researchers discussing case study research have commented on the fact that universally agreed collation and analysis methods regarding qualitative case study research are lacking in comparison with statistical case study research. It can be argued however, that a researcher in a case study has more freedom in deciding on collation and analysis processes relevant to the particular research topic and question. The most appropriate collation method was in this research deemed to consist of developing a matrix of categories based on the interview questions that included the why's and how's of the data. The data gathered from the three cases was therefore collated, analysed and compared according to these methods to document similarities and differences (Thomas, 2011; Yin, 2018).

As there had been a time lapse of 3-4 years between the original interviews and the analysis it was important to refer back to the interviewees and revisit secondary data sources to assess whether there were new information updates that needed to be included. There were only two changes. One was an update on Novozymes' future goals and strategy to include the 17SDGs. The other was an update on additional environmental initiatives in Brahma Kumaris. None of the additions impacted the original interviews. The reports were sent to each case for final approval.

4.4 ETHICAL CONSIDERATIONS

A number of ethical considerations were taken into account. Issues relating to informed consent, confidentiality, integrity and honesty were addressed. Some of the interviewees were employees and some were volunteers. The loyalty of staff towards an organisation was seen to be a potential problem as was the hierarchy of the interviewees in the organisation. The freedom to express both positive and negative sentiments could be affected and hindered by a job relationship whereas the volunteers, it could be argued, had more freedom to express what they felt.
As there was no evidence of the above assumptions, the point was noted but could not be proved.

Informed consent was gained from the interviewees before the interviews. The raw data was interpreted as authentically and correctly as possible and sent to the interviewees for feedback and clearance. To protect the privacy and confidentiality of the participants, specifically when using direct citations from the interviews to highlight different elements in the cases, they were asked in each instance how or whether they wished to be acknowledged or not (Section 4.4).

Through conversation on ethical aspects of the thesis with the Research Department at Brighton University where the PhD commenced, the following was understood: The copyright of the content of the interviews belonged to the interviewees, and the summary written by the researcher belonged to her. The way in which the interview data was collated and rephrased into the final thesis text was therefore important. The interviewees agreed to the research proceedings and processes, and they were kept updated with the progress of the research. They edited transcriptions where necessary and accepted the final narrative (Behi & Nolan, 1995; Robson, 2002; Yin, 2009, 2018). The thesis was completed at the Research Centre at Kingston University and the ethical principles of the University had to be adhered to. These were in essence equivalent to those of Brighton University.

4.5 BIAS

Many researchers today agree that bias cannot be avoided fully and that bias will always be present consciously or unconsciously to some degree especially in case study research. Most researchers referenced in this chapter write about the importance of limiting bias by adopting specific strategies and techniques at various levels of the research process. Even though bias may to some degree influence the study's conclusion it is essential that care is taken to both limit as well as acknowledge its existence. Bias can occur at various stages of the data collection and collation process (Bryman, 2012):

- In the sample selection
- in the selection of people to be interviewed
- in the choice of questions to be asked
- in the interview style
- in the summary of transcriptions
- in the conclusions drawn.

As the sample selected in this case study was purposive and consisted of known cases, it can be argued that in these circumstances bias will be unavoidable. However, as the investigation was exploratory and explanatory and there was no proposed hypothesis at the outset, the degree of bias was limited. Other measures were taken to keep bias to a minimum. The sampling frame for the research was specific (Section 4.3.2). The selection criteria included elements that were similar for all three cases and dealt with the contexts of the cases rather than the content.

4.6 VALIDITY

There are different schools of thought regarding validity and reliability in case study research. Most researchers stress the importance of internal and external validity assessment. Internal validity relates to the reliability and correctness of the data drawn from the interviews and enquires whether it expresses the reality. External validity relates to the data in the context of the wider world and its applicability or generalizability in this context. There was a general consensus that a smaller sample size and in-depth interviews as well as the inductive approach taken in this research allowed for increased internal validity due to the following views by David and Sutton (2004, p. 28): "Inductive approaches may also allow greater depth of understanding as the researcher is freer to allow the researched to dictate the direction of the research". As such the small sample of case studies adhered to this perspective. The freedom of the researcher to allow the information of the processes to emerge was important. Case study research does stress the challenge of retaining the integrity of the researcher in terms of the validity of the data inferred from the interviews. As this research was exploratory with no prior hypothesis to be proven or unproven and as the researcher had prior experience in information gathering the findings could be considered valid and reliable.

Another view is proposed by Thomas (2011, p. 63): "In the kind of research we are looking at here, however, where there is no probability sample and we may have no idea at all about what we expect to find out from the research, the idea of validity is less meaningful". Thomas placed reliability in the same framework as validity regarding the lesser value in case study research as he claimed that some of the most important research in history "would have failed all of the tests of validity" (Thomas 2011, p.64). However, whilst Thomas's views fitted with case study research from his perspective,

the researcher aimed at adhering to David and Sutton's views, that stressed the importance of validity and reliability of the data collected, the process of collecting it, the sample selection and whether or how inferences could be made in a wider application.

A pilot study tested the circumstances around the interview method and questions. This was carried out in a international communication consultancy in London, Dragon Rouge. Both interview questions as well as the interview style were tested and found to be satisfactory apart from a few adjustments in terms of clarification and simplification with regard to the topics covered. This was important in order to allow for the nature of the semi-structured interview method to work as intended. The questions were adjusted to become open-ended rather than specific (Patton, 2014).

The above confirms that the case study approach undertaken thus considered bias, ethical viewpoints and validity whilst acknowledging that in a case study context there will be limits to the degree of being un-biased.

4.7 THE CASES

Three cases of practical implementation processes were selected for examination: An island community, a faith organisation and a multinational company. It was important to select diverse examples that were engaged in similar processes to be able to make an analysis of their similarities and differences. The diversity comprised of culture, identity, focus, vision, contexts, size and the reasons for engaging in practical sustainability implementation. The similarities and differences are documented in Chapter 6.

The following sections briefly describe the cases and their contexts. The full narratives based on the interviews are set out in the case study report in Chapter 5.

4.7.1 Case 1: Samsø - A Danish island

Image removed for copyright reasons

Fig. 4.2 Map of Denmark, where the green circle points to Samsø; illustration of the island; windmills at Samsø (SEA, 2020).

Samsø is an island of the east coast of Jutland in Denmark. It covers an area of 114 km_2 and there are 3,700 citizens on the island gathered in one municipality with several villages. The citizens consist of farmers, small producers of food products, owners or employees of small service, support and tourist industries. The island has a primary and secondary school, churches and social service systems.

The sustainability project on Samsø was initiated through a Danish political initiative in the form of a competition to create a renewable energy island emanating from the Kyoto discussions in 1997 (Section 2.7.1). Samsø won the competition and was given seed money to start the process. Citizens collaborated with the municipality to achieve the goal. The timeframe for the project was ten years but the goal was achieved in seven. The impact of the success affected the island and its development progressively mainly because of the way the goal was achieved as described in the next chapter. Additional developments and follow-on effects emerged from the process that has benefitted both the people and the island itself.

Samsø was included in the sample frame with the following attributes:

- It was an island.
- The entire community, politicians and citizens were involved in the project.
- The sustainability process started more than 20 years ago.
- The island became publicly known in Denmark and internationally for its achievement to become a 100% renewable energy island.
- It was different in content and size and nature to the other samples (SEA, 2019).

4.7.2 Case 2: Brahma Kumaris - A faith community, India

Image removed for copyright reasons

Fig. 4.3 Brahma Kumaris headquarters in Rajasthan, India (Brahma Kumaris, 2020).

Brahma Kumaris is a faith community/charity with a focus on world peace. Its headquarters are situated in Rajasthan, India and it has approximately 6,000 regional offices in 110 countries on all continents. The organisation has approximately 1 million followers. The local centres are independent organisations or charities collated under the Brahma Kumaris umbrella.

Brahma Kumaris is an international non-governmental organization (NGO) of the United Nations, in general consultative status with the Economic and Social Council (ECOSOC). It is also affiliated to the UN Department of Public Information (DPI) and is an accredited observer organization to the United Nations Framework Convention on Climate Change (UNFCCC), Biological Diversity (CBD) and to Combat Desertification (UNCCD) and the UN Environment Program (UNEP).

The attributes of Brahma Kumaris as part of the sample were the following:

- It was a faith community.
- It was a community with centres and approx. 1 million followers worldwide.
- It was an NGO to the UN with a focus on peace, spirituality and human wellbeing.
- Brahma Kumaris had for the past many years been engaged in environmental initiatives both in its own centres as well as in the UN.

The combination of the social and the environmental focus combined with a different economic model made the organization a practical and different example to the other two cases of sustainability in action (Brahma Kumaris, 2019).

4.7.3 Case 3: Novozymes – A corporation, Denmark

Image removed for copyright reasons

Fig. 4.4 Novozymes headquarters in DK and tagline (Novozymes 2020).

Novozymes is a Danish corporation with an international outreach. Its headquarters are based in Denmark. Novozymes specializes in enzyme production for approx. 700 products that are used in and around the home on a daily basis i.e. washing powders, beer, juices, bread, clothes, paints and cleaning agents. Novozymes has offices in 130 countries and has 6,500 employees worldwide. The company has been an active collaborator with the UN on the development of the 17SDGs (Sustainable Development Goals) for a number of years.

The attributes for selecting Novozymes as a case were:

- Novozymes was known to have embarked on addressing sustainability issues more than 20 years ago.
- The company integrated sustainability measures into all its offices as well as production cycles around the world.
- The company represented the business industry and was a global corporation listed on the stock exchange.
- Novozymes was a well-known company in Denmark and internationally, mainly due to its success and sustainability interest. It was a very different entity from the other two cases (Novozymes, 2019).

4.8 SUMMARY

A multiple case study was undertaken to mainly address RQ2. The research approach chosen for this purpose has been explained above in detail. Contributing to the data

has been the addition of secondary research into the contexts surrounding the cases including the researcher's existing knowledge and experience of sustainability.

Choosing a case study approach to address one of the main research questions, namely the applicability of sustainability, seemed the ideal choice in order to:

- Examine in-depth three cases of successful implementation of sustainable development initiatives.
- Gain insight into the transition processes, why and how they came about.
- Open the possibility to create a framework for wider usage.
- Open the possibility to generate theory.

A question remains whether a sample consisting of more than three cases might have been conducive to obtaining a greater degree of validity. On the one hand, the aim of the thesis was to explore and examine the nature of sustainability and its applicability through an in-depth study of a few real-world examples. On the other hand, more cases might have ensured a result for a more general and universal context. The latter was not the initial objective but has become more so as the research has progressed, and as salient points have been revealed that may be applied in other contexts and situations. It is, however, due to the in-depth study of these cases that insights have been gained that will be valuable in developing a framework for further use.
As discussed previously further research can be undertaken based on this research evidence (Section 7.5).

The next chapter outlines the narratives of the three cases based on the interviews. Chapter 6 analyses the data gathered and proposes answers and conclusions to RQ2 encompassing elements uncovered that contributes to RQ1 on barriers to sustainability.

CHAPTER FIVE
CASE STUDY REPORT

"Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it is the only thing that ever has"
- Margaret Mead, Anthropologist (1901-1978).

Image removed for copyright reasons

Fig. 5.0 Samsø windturbines (SEA 2020); BK Solar powerplant (Brahma Kumaris 2020); Novozymes enzymes (Novozymes, 2020).

CHAPTER 5: CASE STUDY REPORT

5.1 INTRODUCTION

The four previous chapters introduced the topic for the research, set the focus and context for the investigation, stated the research questions, mapped the field of sustainability, outlined the theory and practice of utopia and discussed the methodology with which the research questions would be addressed. This chapter documents the data from the case study research. The three cases are presented in a narrative format as a summary of the interviews. The stories were written based on the data provided by the interviewees and set in the context of information gathered from secondary sources. This body of knowledge forms the basis on which specifically the second research question is addressed that examines lessons learnt from current practical sustainability initiatives. The narratives are essential to the comparative analysis conducted in Chapter 6 and each case is outlined according to the chronology of the interviews.

5.2 CASE CONVENTION

The sequence of topics in each narrative as previously mentioned follows the same chronology as the questions asked in the interviews and are used as the main headings. The cases and underlying sections vary in length, due to the fact that the interviews were open-ended, and the cases were fundamentally different.

The interviewees

The interviewees in each case adhered to the following chosen criteria:

- Leading the transition process.
- Working at management/leadership level.
- Key people, essential in and to the transition process.
- Had extensive knowledge of the background history of the cases.

The interviewees had more knowledge of some issues rather than others as they each had different roles and responsibilities in the organizations and teams as well as in the sustainable development processes.

The text

The narratives are a compilation of the interviews, conducted, transcribed, written and compiled in 2014-2015. The text was updated and edited in 2019 with regard to relevance, new facts and information in relation to each case. The update was accepted and cleared by the cases either in meetings, phone calls or by email. Each interviewee had, due to their particular roles in the process, their own specific perspectives and experience in the transition process. Data regarding the context of the cases including facts and details was gathered from the case websites and cleared by the three units.

The text contains direct quotes made by the interviewees anonymously. It was their choice not to have each quote referenced.

Samsø convention

The Samsø case was based on open-ended interviews with three key people from the Energy Academy on Samsø. The Energy Academy was set up in 2007 as a follow on from achieving the renewable energy island status. The Energy Academy has since then supported the continuing sustainable development process of the island. It has led the promotional and educational activities in collaboration with the municipality (SEA, 2019).

The people interviewed were:

- The CEO of the Energy Academy, who was in charge of and led the renewable energy project.
- The Head of Communication, the Energy Academy, in charge of the communication and information activities in the energy project and was the *right-hand* person of the CEO.
- The Project Head, Fossil-free Island, the Energy Academy. The role encompassed being part of the leading team and focusing on the technical aspects of the energy project.

The CEO provided most of the overall input to the interview topics with a focus on the process, community and key lessons learnt. The head of communication complemented this with information on the essence and psychology of the island and islanders in the transition process including the interpretation of the definition of

sustainability. The project head supplemented the CEO's input and contributed to all the topics discussed. On the definition of sustainability, the interviewees provided both their own as well as an objective interpretation of the construct. They all contributed to the process narrative and lessons learnt.

Since 2015 I have been a board member of the Energy Academy. I was not personally involved in the Academy when the interviews took place in first half of 2014. As the case dealt with the transition of Samsø from 2000 - 2007 I was not involved in any of the documented activities, nor did I have any detailed knowledge of the interviewees at the time.

Brahma Kumaris convention

The interviewees were volunteers in Brahma Kumaris. They had been with the organization for many years. They were:

- The European Director of Brahma Kumaris, Head of the UK Centre. The director also led the sustainability initiatives worldwide.
- Advisor Renewable Energy and Head of the Project "India One", the solar thermal power project in India, also involved in international environmental activities.
- The Head of Brahma Kumaris, Denmark, instigated and led the Environment Initiative and was active in the COPs worldwide.

The three people interviewed were and are still driving the main sustainability initiatives in Brahma Kumaris. They are active internationally, have taken part and organized events in the UN COPS around the world.

The European director provided overall input to the topics with a focus on the essence, the philosophy, values and activities. The renewable energy advisor contributed in particular to the solar initiatives and development as well as to all other topics. Head of Brahma Kumaris, Denmark, contributed with specific information on the Environment Initiative as well as other green initiatives within the organization including the international activities and COP attendances. Regarding the definition of sustainability, they provided their own as well as the organization's interpretation of the construct. They all contributed to process and lessons learnt.

Novozymes convention

The interviewees had been employed by Novozymes for a number of years and were:

- The Head of Corporate Sustainability. Driving the change in the company and led the sustainability initiatives.
- The Senior Manager for Sustainability Assessment. In charge of LCA activities and party to furthering the sustainability initiatives across the company.
- The Management Assistant. Assisting the Head of Corporate sustainability. Helped to initiate the early sustainability activities in the company.

The Head of Corporate Sustainability provided most of the input related to the process and transition activities including the business approach, lessons learnt and future aspects. The Senior Manager for Sustainability Assessment provided most of the information on the Life Cycle Analysis processes, internal collaboration as well as key lessons learnt. The Management Assistant contributed specifically to the early history details from Novo Nordisk (mother company of Novozymes) and Novozymes, early sustainable development initiatives as well as the value discussion. All interviewees contributed to the general overall input on the topics. On the definition of sustainability, they provided both their own as well as the Novozymes' interpretation of the construct. They all contributed to the process and lessons learnt.

5.3 CASE ONE: THE ISLAND OF SAMSØ

"Our goal of achieving 100% renewable energy sources in 10 years... we achieved in 7 years".

5.3.1 Introduction

Samsø

Location: In the sea of Kattegat, Denmark.
Population: 3,724 citizens.
Area: 114 Km2.
One Municipality - 23 villages.
Largest town: Tranebjerg.

Sustainable development initiatives:
Samsø became a 100% renewable energy island in 2007 from wind, solar and biomass energy.
Electricity and heat are produced from:
11 land-based windmills, 10 offshore windmills, Eco-heat, Solarheat plants, Heat pumps (SEA,2019).

Fig. 5.1 Handdrawn outline of Denmark with Samsø encircled.

Image removed for copyright reasons

Fig. 5.2 Wind turbines (SEA, 2020).

Fig. 5.3 The Energy Academy (SEA, 2020).

Image removed for copyright reasons

Fig. 5.4 Ballen Harbour (SEA, 2020).

Fig. 5.5 Solar panels (SEA, 2020).

Samsø is an island in Denmark. It is positioned in the area of the North Sea called Kattegat to the east (approx.15 kilometres) of the mainland Jutland and to the south of Norway. It covers an area of 114 km_2. The municipality of Samsø has approx. 3,700 inhabitants called Samsings. The island has from older times been the home for small sized farms, mainly growing potatoes (the island's potatoes are famous in Denmark) and asparagus. The island had a number of cooperatives, established in the 19th century, when the cooperative movement swept the country. The cooperatives included dairies, local shops and later a slaughterhouse for meat production sold to the mainland. People were employed on the farms and in the cooperatives. In the early 20th century there were approx. 7,300 inhabitants on the island. This number slowly decreased due to lack of education possibilities and employment opportunities. However, the mild climate around the island promoted a growing tourist industry, which currently constitutes the main form of employment and income generation on par with agriculture and renewable energy expertise (Den Store Danske, 2001).

Renewable energy island

In 1997 Samsø won a government competition to become a model renewable energy community. Svend Auken, the then Danish environment minister, promised in Kyoto to cut CO_2 emissions in Denmark by 20% and announced that he would prove that it was possible to create a community, where the energy was 100% renewable. The minister organized a competition to embark on creating renewable energy islands in Denmark. The islands of Ærø, Læsø, Thyholm, Samsø were each asked to produce a master plan. Samsø won the government competition to become a renewable energy community. The island was until then dependent on oil and coal imported from the mainland and there was no district heating system in place.

"Should we go for it?"

This was the question for Samsø's energy and environment office. A public meeting was organised and teachers, farmers, shopkeepers, smiths, carpenters, hippies etc. turned up. The organizers said: "We would like to embark on this because of the chance to become the first Danish energy island". The people present agreed that it would be interesting to be part of the experiment. They formulated a declaration and created an organization with a steering committee and got the local mayor involved. He supported the project from the start seeing this as a way to create new jobs, to be

at the forefront of development and to open up for new ideas to strengthen the survival prospects for the island.

The environment minister did not give any support apart from the title of becoming a "Danish Energy Island". The community had to find seed money to develop the plan themselves. They wrote an application to the Danish Energy Agency and received 200,000 DDK (£ 23,459) in funding to write the master plan together with a number of collaborators. The long process to develop a renewable energy island then started.

"The island has a tendency to be a small world, different from other areas on the mainland. An island is more special - you have to take the ferry".

Samsø today

Today most of Samsø's electricity comes from wind power and 75% of heating is sourced from photovoltaic cells and biomass energy. Some vehicles are powered by locally produced biofuels (rapeseed) and there is an increase in electric cars. The Energy Academy was established on the island with a visitor education centre. It hosts approx. 4-6,000 visitors a year. They are called *energy* tourists and come to learn about the renewable energy project. Samsø has overall approximately 100,000 tourists per year providing the second largest income after farming. The academy is currently working on making Samsø 100% fossil free and is together with the local community developing the next phase of *greening* the island. There is a focus on developing a sustainable transportation system using renewable energy forms as well as a focus on developing organic farming producing a variety of vegetables, grains and fruits, meat and livestock products. There is an increase in dairies, breweries, restaurants and cafés - as well as permaculture, foraging and forest garden experiments. Several master plans are in the making for extending the organic production and education in renewable energy systems. There is a wish to create more jobs and stimulate new settlements on the island, secure its future and make it a role model for the creation of sustainable communities nationally and internationally (SEA, 2019, Samsø, 2019, Den Store Danske, 2019).

5.3.2 Vision and mission

"To get the community on board to make it happen".

The main official and public vision in 1997 was to make Samsø a renewable energy island over a period of 10 years. However, according to the interviewees there were *sub*-visions, which were as important, if not more important, as the main vision. These included reviving and revitalising Samsø by creating income generating activities, reactivating old businesses and developing new areas of work. It was important for the island to become independent of fossil fuels and of fluctuating oil prices at the same time as energizing and empowering the local population. "Reduction of CO_2 emissions were very low on the list of reasons", one interviewee commented. The survival of the island was essential to the islanders and for them to participate and be able to decide for themselves as a community. Another of the island's goals was to find a way to keep the young generation on Samsø: "They leave the island to get an education and not many people come back. Only 10% return to the island after their education".

It became clear to the initiators at the start of the project that the key mission to achieve the goals was to get local community support. This included engaging in activities to replace the existing fossil fuel-based energy- and heating systems and move towards alternative systems instead. It was felt that unless local people became involved, the project might easily fail. Subsequently many meetings, working groups and interest groups were organized and more than 130 locals became directly involved in the process, while many more supported the initiative.

5.3.3 Philosophies and values

The interviewees underlined the multi-facetted approach and philosophy of the undertaking. The philosophy underpinning the work was based on a hands-on, bottom-up approach. However, they stressed that there were both practical reasons and more idealistic reasons for starting the project but to make it happen the process had to be hands-on. A “survival” kit was created to produce more jobs, create more local independence, stop dependency of fossil fuels and create new possibilities for the development of Samsø. This meant involving people both young and old and generating down-to-earth tasks and methods for them to engage with. The philosophy was centred on a deep understanding and respect for the islanders, their traditions, way of life, love of the island as well as an understanding of the island's social structure in terms of the decision-making processes.

The project, it was stated, was built on the values of the old agricultural community - such as the ancient Viking community, where wise and mindful use of resources, protection of the community and trust were important values. Samsø rests on an old island hierarchy, where collaboration and social relationships are core elements - they are at the heart of the community.

Core values

Core values included trust, respect, wisdom, empowerment, transparency, co-operation and collaboration. The power of the combination of these was demonstrated by the people leading the project. The current CEO of the Energy Academy and leader of the initiative was a 7-generation farmer of Samsø. He was well-known and respected by the local community. He was down-to-earth, had great communication skills, was clever, had a good sense of humour and combined with respect for the local community and love of the island they were qualities that made people listen. The leader was supported by people with similar qualities and who were part of the organizing team, driving the process to get the initiative up, running and progressing.

5.3.4 Sustainability

"*It is about being confronted with all the shadow sides of the wellfare society*".

The personal views

In the interviews, general personal comments and views on sustainability were made as well as on sustainability in the context of the island. The philosophical view was that sustainability was about living in balance with the earth and its resources, whereas sustainability in the island context was about community, collaboration, jobs, social interaction and empowerment. Sustainability, it was said, constituted a choice, a consciousness around the choice one makes and the consequences it causes. It was about downsizing and planning a balanced future, assessing the available resources and utilising them effectively in the short as well as in the long run. Sustainability was not only about self-sufficiency but was also about freedom, and freedom in the interaction with people. It was about having a core - a soul and about continuously “sharpening the sword like the Samurai warrior”. Sustainability was about choices: “Do you need this? Do you need that? How can we improve and renew, consider the resources we have and our stewardship of them?”. It was about being able to see

seven generations ahead. The farmers did that in the past. It was a cultural heritance and part of their DNA, where balance was an integrated part of their livelihoods.

Sustainability, it was also said, should be the rule, not the exception to the rule. Having a pragmatic view on ecology, nature, spirituality - this was where transformation should start, and it was a bottom-up movement, not a top-down scientific process. The sustainability paradigm was about: Does your life make sense? Your work? Your priorities? Your choices? The holistic aspect lies in the detail. If the details do not fit together and create a balanced whole, there will be collapse. There was a view that if it was known precisely, what kind of expertise constituted sustainability, it would be possible to define, evaluate and acknowledge the concept and create a balance between the inputs from experts, facilitators and practitioners.

The Samsø context

Sustainability in the Samsø context was seen as both a locally orientated and hands-on concept. For example, farmers should not be regarded as *bad* people because they did not grow organic crops. Instead sustainability should be about talking to them and discussing the issues, such as how could fertilisers be produced on the island and not be imported? How could carbon be captured from the air and used as fertiliser on the fields? How could the farmers grow organic crops and make a profit? Sustainability encompassed local collaborative factors, which meant reaching a joint agreement on the elements to be implemented, what process and method to use and doing something about it.

Sustainable development reflections also included the idea of developing a contract between the urban areas and rural areas. The rural areas were producing resources i.e. food for the cities. The cities were seen by the islanders to give nothing in return, apart from pollution. “Carbon is exported to the cities, it is digested and burnt in generators for cheap heating for houses and nothing is given back”. Not a good bargain for the rural areas. “We want the *shit* back in bags to use it as compost, so to speak”. It was about creating a circular economy and a reciprocal resource system between the city and surrounding countryside, so that both parties benefited.

Spirituality was considered an integral part of sustainability. It existed on Samsø in a different form from the normal understanding of spirituality. The community was not

specifically religious nor spiritual. But there were key elements present like belief, loyalty and love. Belief in a better way of life, a better island, a better world - an inner wish to change society. Loyalty towards what is, what was and loyalty towards the island and islanders. There existed a deep love for the island, its families and its history.

5.3.5 The process

There was a lot of scepticism at the start of the initiative in 1997. “How are you going to convince the local people to drive electric cars? A journalist asked.” When the competition was won the mayor was interviewed on local TV and was asked the above question. He did not know what to answer. No one had thought about how they were going to realise the project. The renewable energy island was a nice title and the expectation was that ample funding would be available. This turned out not to be the case and most of the locals thought: “we have heard this before.....about change and initiatives that come in from the outside and end up in nothing”. So, the attitude was that if they just kept quiet and waited without doing anything, then the “outsiders” would lose interest and life would carry on as before.

The local community had previously seen many plans, proposed for the municipality, developed by big outside consultancy firms and knew that many of these were never progressed. The first and key job for the team was to work with raising the awareness of the project and its potential and make the islanders aware of the ownership possibilities and the what's-in-it-for-me elements. People were stressed about the increasing unemployment and an uncertain future for the island. Therefore, to raise interest and alleviate some of the worries open awareness and information seminars were organized. This was the first step. The second step was to work out a masterplan and make it practical which they did.

Preparedness

One method used repeatedly in the many meetings (participated by schoolteachers, blacksmiths, local community heads etc.,) was the detailed preparations. The organizers prepared the plans to be presented in minute detail. They then spoke with key local people, who were going to attend and explained the plans to them prior to the meeting. The organizers knew that if these people backed the plans, other people present were more likely to go along as well.

Co-operation and collaboration

A major factor in the success of the project were co-operation and collaboration at all levels. The following citation from one of the interviewees stressed this fact: “We adopted the holistic approach, kept the old-time village structure, where the big farmer and the little farmer had to work together. We created many meetings in the villages with the village organizer. We brought the coffee and cakes and proposals to their premises. We had open discussions, where people could say “I don't believe in these things”. It was ok to be negative. We said: “Let's see what we can do, and you can make up your mind now or later, as long as you agree that we should try”. They all said, “yes, let's try, we can always reject it”.

The project leader explained: “To begin with I was very enthusiastically talking about *changing the world*, but the locals rejected this completely. I had to go home and reconsider, what went wrong there. There had to be some carrots. I asked the engineers to break up the project into smaller bits, i.e. we need so much manpower, so much energy and so on. Then I had meetings with the bank on the finances so that we could put the paper with the figures on the table and say: This is the cost. It will cost you so much per year to do this project”. The team leaders discovered that they could save more than 20% on overall energy costs on the island and spoke to the bank. The bank liked the project because it made financial sense. The house owners liked it because they could save on the price of energy. Everyone was able to see the what's-in-it-for-me aspects.

Communication

The project leaders used a variety of communication channels and skills to spread the initiative and get as many people involved as possible. They asked the local craftsmen, small businesses and service providers i.e. smiths, plumbers, painters, carpenters and electricians to promote the project, when they went out to do repairs on the island. However, it was apparent that even if they agreed to do this, often nothing happened. The project leaders decided then to offer courses and training in renewable energy skills to the small businesses and service providers. This produced the desired results as they were both able to sell their normal services as well as offer new skills within the renewable energy field i.e. installation of solar panels, mass ovens, insulation, energy checks etc.

Business-like approach

The experience was that even if the work had to be locally orientated, hands-on and appealing to everyone in the island community, the approach had to be prepared and presented professionally. It was not just volunteer work done in after-work hours. The business-like approach was important for people to take the work seriously, and many hours were spent by the project team to make sure there was a focus on details. The team did the practical work in order to make it easy to participate. When the first wind installations worked well, it attracted more interest from the citizens who wanted to invest, and the project leaders helped to organize individual bank loans to help local investors overcome the fear, people often had of going to the bank and asking for money.

The process worked and became successful. This was also due to the fact that if someone did not trust the process or the information presented re plans, facts or figures, informal meetings would be set up, and the issues would be dealt with over a cup of coffee in people's homes or workplaces. “We needed to have everybody on board, so we addressed one village at a time - in all 23 villages. We estimated that 60-70% of all households would be interested in district heating, based on renewables. Some houses were outside the limits of district heating, and they needed to install their own individualized heating systems”.

5.3.6 Lessons learnt

'We had as much as possible owned by people and structured by people”.

The preliminary work and preparation activities by the project leaders were a major factor in the success of the initiative, the interviewees stated. It created a sense of being looked after and respected as it was easy for anxious people to generate myths and gossip and invent reasons not to participate. The attention to detail and the ease with which people could engage as well as the successful first instalments of the new energy systems helped the process along and surrounded it with positiveness.

External factors

Other aspects that helped further the interest was the increase in oil prices. Even though the national prediction at that time had been a decrease in the price of oil, this

did not happen and the world increase in the oil price influenced the project in a positive way. People began to realize the added value of investing in green initiatives and reduce dependence on fossil fuels and thereby creating a greater potential for the island.

Good investment

"You could save money and be protecting the environment and still have a good house, where you don't lower the comfort".

The positive returns on investments from the wind turbines were very important. One citizen, who bought shares in the windmills said: "I did not have any money and had to borrow it, and my parents had to countersign, so that I could borrow the money. I bought two shares for 30,000 DDK (£ 3,518) each. They have been paid back, and I earn 1,000 DDK (£ 117) a month on the shares now. I paid the loan back over eight years. It was a good investment for the people on Samsø, who bought shares". There were harsh and fierce discussions with the farmers as they initially wanted to own the wind turbines or the leases on their land. However, many farmers who invested in the project say today: "It was a good investment".

The renewable energy initiative created a change in attitudes. The mindset changed. Instead of buying vacations, going to "Thailand on holidays and buying red wine", many citizens started to invest in renewable energy, in wind turbine shares, in insulating their homes and currently many are buying electric cars. It became a competition to engage in something, not just in order to save the planet, but also to save money. This helped create a better local economy on Samsø. The average income was the 4th or 5th smallest in Denmark. However, the islanders succeeded in building the biggest offshore wind turbine park in the world in 2003, and Samsø became a renewable energy island in 2007. They were and are very proud of that.

Other gains followed in the wake of the installation of the new energy systems. The price of electricity remained the same, but the profit now remained on the island, as the islanders created their own electricity company. Households with solar cells on the roofs generated their own electricity and did not have to buy from the grid. The awareness of consumption and attention to energy saving increased. The average

electricity consumption on the island decreased, even if the change to heat pumps running on electricity increased. In comparison to the mainland this was another positive outcome as the mainland had an average increase of 6-7% in energy consumption p.a.

Proactive collaborations between the municipality and local businesses on Samsø were set up to look at what more could be done, what was the best solution for each new initiative, calculate the consequences and the what's-in-it-for-me gains before taking action.

5.3.7 Difficulties/barriers

The process was not just “smooth sailing”, it was said. There were difficult periods and difficult hurdles. Communicating the initiative, so that people could see, feel and understand what the project was about, was difficult. Secondly, there was a lack of people, who wanted to participate without the view to gain financially or having the what's-in-it-for-me attitude. Three different factors drove the initiative: The heart, the mind and the wallet. When asked what came first, the answer was: “The wallet”. There was a feeling that the project could have been more diverse. It was to some degree felt that both mind, heart and the long view were absent in some of the processes and that there was too strong a focus on purely economic aspects.

Tough process

A crucial factor was the fact that the project was carried and led by a group of strong-minded people, who worked hard to generate success. It was a tough process and took its toll. Other issues were the fact that some people gained more financially than others. This was at times a contentious issue. On the other hand, there was a view that if the plan had not been broken down into short-term results and gains for the locals then they might not have become involved.

There was a keenness to get acknowledgement from central government in Copenhagen and prove that the project could succeed, as well as a wish to gain international recognition. This caused some tension as there was pressure both from the outside as well as from within the community to generate results.
The following is a summary of some of the problems encountered:

- Big changes are complicated in small conservative communities like Samsø.
- Once a project has been promoted in a way, where people reject it, it is very difficult to course correct.
- “You have to be very careful, how you do things. You can't be too open-minded and be this happy fellow, who is advocating green transition, because people will see you as an irresponsible Copenhagen hippie”.
- Getting the wrong people on board can cause problems.
- People might support activities at meetings, but then behind “the scenes” be talking the project down i.e. saying that it is probably not going to be successful.
- People are naturally conservative, engage in small talk and gossip. This can have a negative effect on the process.

The way the above barriers and problems were overcome, according to the interviewees, included the project leaders listening carefully and mindfully to the local community. They listened to the background gossip to discover what was going on, as many people were caught up in realizing their own personal ambitions. From time to time the development process had to be slowed down or even stopped while this took place. The project leaders went into the community, talked and listened to key community members to hear what they thought, the problems they saw and how to move the process forward. Without these on board “we will have problems forever. That is a fact”. “Some projects did not pass through, and I still don't really understand why, but I believe we did not get the right people on board from the beginning”.

Other factors

External factors also caused problems from time to time. For example, the wind turbine companies did not understand, why it was taking such a long time to get everyone on board. However, the locals demanded that the initiative should respect their wishes, otherwise they would not lend the required support. “It may not be the most rational way, but it is the only way here in this community. It is either this or nothing”. The difference between the two attitudes lay in the fact that the renewable energy suppliers “were sitting behind their desks in their offices and were not on the ground”, and there was a disconnect between them, which did not generate the desired results.

Other factors were changes in government policy during the process. Budgets and subsidies were cut. Luckily there were signed agreements with the government for the main part of the work on the island. Some projects, however, were terminated due to policy changes, which was not good for progress. Ten years of political planning was important, but with policy changes every 2 years people got weary and started to worry: "What is going to happen to my budget and what about taxes?" Transparency and honesty were the only way these issues could be dealt with. Honest and clear communication.

5.3.8 Key factors

"Never give up, always going for solutions. Always looking for the best solution".

The following is a prioritized summary of the interviewees' reflections on what worked well in the process.

- Joint and collaborative leadership.
- Hardcore strategies.
- Elaborate and detailed planning.
- Good, clear and ample communication.
- Attention to detail.
- Trust between the stakeholders.
- Transparency, loyalty, inclusivity, connectedness.
- Ability to listen.
- Honest talk.
- Sharing of and respect for cultural and traditional values.
- Sharing of the good story.
- No backstabbing.

The following factors below were thought to be critical in the process.

The right leaders

"You need *firesouls*/pioneers to work with the project all the time. Even though you meet barriers and obstacles and have some people driving the project, never give up, always going for solutions. Always look for the best solution".

It was stated that the quality and dedication of the leaders were crucial. Not only did they develop and run the project, bridge the gap between government and the island, organize meetings, create working- and interest groups, they also set up a variety of associations and businesses, delegated a variety of tasks and roles, did their bit as ordinary citizens, showed up at different events like birthdays, christenings, weddings etc., participated in meetings on cultural issues and sports and were prepared to help everywhere and everyone. They became special members of the society and had to fulfill a variety of roles.

Key people

There were key people (influencers) in the community. They were people who others listened to, who had a say and who were both inspiring and important in the community. The project leaders met with them individually, talking about the project and the contexts. They went from house to house and engaged in general conversations. They talked about the environment, waste, energy consumption and looked back to 2nd WW, when there was a shortage of most things. Topics that people could relate to. The project leaders brought along well-prepared plans, talked about the cost/benefit analysis in general terms, offered to do the paperwork and post the forms. All the locals had to do were to sign the documents and subsequently receive and utilize the funds for the designated purposes. The project got good supporters that way, who subsequently became local ambassadors for the project, talking to families and neighbours about the initiative.

Education and training

Education and capacity building were also key to the success. As mentioned before local craftsmen and small businesses were given the opportunity for training in renewable energy installation techniques and skills. This made them aware of the possibilities and to be able to supply the relevant services to fit people's individual needs.

The *sweet* spot

Finding the “sweet spot” between the heart, the mind and the wallet was important as well as understanding which of the three was critical to whom.

Bottom-up process

Positive collaboration with the municipality and the community were also crucial factors to the positive outcome. Asking people where, whether and how - involvement of the whole community. It might take longer but it ensured a good result. An example: "Today there are no complaints about the wind turbines on Samsø. This is not so in the rest of Denmark, where local communities object to the installations of wind parks on land and in the sea, protesting that the wind turbines kill birds, make an unbearable noise, make the light flicker, are ugly to look at and so on. On Samsø the turbines were not build in the cheapest location, nor were they built where the wind blows the most. They were built where people wanted them to be built. Therefore no one complained about them". Additionally, many people owned shares in the wind turbines or knew someone who did. The parameters of success demanded this kind of bottom-up process, where people were involved as many conflicts were thus avoided.

5.3.9 Other reflections

Looking back over the past 17 years the interviewees reflected that were they to start the initiative today, they would make use of many of the same methods. However, the parameters changed. Since 1997 national budgets changed and green policies were put in place. Green development was no longer an idealistic project but became a market-driven issue. The people of Samsø therefore had to find new goalposts for developing the project and decide on the next step. They had learnt, that to succeed a certain size of community worked best, and that if their community increased in size, they would have to put new thinking in place as the coherence otherwise might start to break up. They had learnt the importance of taking smaller steps at a time and not have interest groups that were too large. Most of all to keep asking people what they were comfortable with and being good at listening.

Another reflection by the interviewees was that the story mattered, the good story about what got them there, the story about becoming a role model. It was stated that a number of factors coming together made the project more powerful than expected - there was a synergy or symbiosis - an allowance for emergence to happen. The timing was right, the leaders were the right leaders, the direction was the right direction. Locality, activity and mentality joined together created a mind-shift that caused the goal to be achieved in seven rather than the estimated ten years. This mind-shift also

attracted new players/people to the island to contribute to the development of new opportunities.

A final reflection was that clear communication between the government in Copenhagen and the people of Samsø was important. The islanders felt there were too many regulations, too many laws that controlled local communities and too few bridge-makers to close the gap between the rural and urban communities. There was and still is a disconnect between the rural and urban communities in Denmark. Their wish was to have more responsibility locally and more decentralization.

The renewable energy project on Samsø was completed three years earlier than estimated, and the islanders decided to build on the success they had achieved and continue to *green* their island. From focusing on electricity and heating they turned their attention to transportation, water- and waste management in terms of up-cycling, recycling and water treatment processes. Until that time the island had paid to get rid of waste, now they wanted to utilise it as a resource. Food production was looked at. Farmers on the island paid more to transport their products than farmers on the mainland. Some of them realized, though, that they could compete on quality. Organic farming increased although at present only 5% of the farmland is organic. An association was established, looking into the opportunities for organic farming and collecting funds to buy farms to grow organic crops. Young families can now lease these farms for 2-3 years and after that be allowed to buy them. Discussions were also centred around social topics such as new values, health, security, demographic changes and well-being as the next targets for sustainable development for the island.

According to the interview group the new plan is to be 100% free of fossil fuels in all areas of activities before the rest of Denmark and the EU and embark on implementing the circular economy on the island as well as the 17 SDGs. The islanders feel that they have a past, a present and a future and want to build on and utilise the experiences and lessons learnt. The island has become world famous because of the achievement, and many people from abroad come to the island to learn about the process to replicate it in their own communities.

5.3.10 Samsø summary

The Samsø identity has changed. People have become empowered, strong as well as proud of what they have achieved. There is a calling for the island, a pull towards the future based on a new understanding of their common set of values, common philosophy, common methodology and process. The islanders have learnt what stability, consistency, strength and community mean.

What Samsø achieved can in many ways be said to be exemplary given the context in which the island previously operated. The case can provide a lesson and act as a model to those who want to develop sustainable intentional or smaller mainstream communities and societies. A careful scrutiny of the Samsø story and process can provide clues and key elements when embarking on similar initiatives. It has especially become clear that the right leaders are crucial. Leaders who are dedicated to the success of the process and are willing to do what it takes, work all hours, stop the process if needed, listen and be mindful of the community as well as leading powerfully.

The mood and hope for the future are positive. Pride has been generated and the islanders feel very proud of their achievements. What needs to be promoted is the continued process towards becoming a sustainable island. Transportation, agriculture as well as social issues dealing with the young generation leaving the island need to be addressed. Samsø has become a flagship of Denmark's sustainable development process and has surpassed some of the barriers discussed in Chapter 2 (Section 2.12.1) of this thesis. In this context it was interesting to note that the island did not utilise any of the existing models available described in Section 2.9. They designed their own methodology. The island has shown that with dedication, wisdom and people-orientated leadership skills a great deal can be done by individual communities to further sustainable development initiatives.

5.4 CASE TWO: THE BRAHMA KUMARIS WORLD SPIRITUAL ORGANIZATION

"Through a variety of activities and partnerships, the organization promotes spiritual understanding, universal values and leadership with integrity towards a better world" - Brahma Kumaris, 2019.

THE BRAHMA KUMARIS WORLD SPIRITUAL ORGANIZATION

Spiritual Headquarters: Mount Abu, Rajasthan, India.
Founder: Dada Lekraj Kripalani.
Founded In 1937, in Hyderabad, Pakistan.
Current Leader: Dadi Hirdaya Mohini
6.000 Centers in 110 countries.
Activities: Education and training, workshops, conferences, social and health work, hospital Services.
(Brahma Kumaris, 2019)

Achievements based on sustainable development initiatives:
Accredited observer organization to the United Nations Framework Convention on Climate Change, (UNFCCC), Biological Diversity (CBD), Combat Desertification (UNCCD) and the UN Environment Program (UNEP).
1 MW solar thermal power station with 24-hour thermal storage.
1400 photovoltaic systems in BK centers in India.
Environment Initiative with a wide variety of global initiatives.
Solar Energy Steam for cooking and electricity.
Hospital offering holistic healing treatments.
Yogic farming and food production amo.

Image removed for copyright reasons

Fig. 5.6 Brahma Kumaris Spiritual Headquarters, Mount Abu, India (Brahma Kumaris, 2020)

Fig. 5.7 "India One": 1 MW solar thermal power plant. (Brahma Kumaris, 2020)

Image removed for copyright reasons

Fig. 5.8 Yogic farming (Brahma Kumaris, 2020)

Fig. 5.9 COP 25 team (Brahma Kumaris, 2020)

5.4.1 Introduction

"respect, equality and humility"

Brahma Kumaris (BK) is a faith organization and an international NGO affiliated with the UN. Brahma Kumaris was first established in 1937 as a spiritual school for women in India. Today it is an organization that is dedicated to personal transformation and "world renewal" with a focus on teaching Raja Yoga meditation. Raja Yoga is a meditation method that focuses on the soul or soul energy in people in order to help "individuals transform their perspective of the world from material to spiritual". "It supports the cultivation of a deep collective consciousness of peace and of the individual dignity of each soul" (Brahma Kumaris, 2019).

The founder of Brahma Kumaris was a wealthy businessman in Hyderabad (then India now Pakistan). At the age of 60 he started to experience visions of a new and peaceful world and felt inspirations coming from God giving him the task to set up a spiritual school that had to be run by women. Brahma Kumaris means "daughters of Brahma". It was the first school for women in India and was controversial at that time in the male-dominated Indian society. There was therefore substantial resistance to the project from mainstream society, but the school grew and is today an international NGO with approx.1 million followers worldwide.

At the beginning the school educated women to become teachers and leaders based on spiritual principles with the aim to promote world peace. There was a belief that if a school to promote world peace was to succeed it has to be developed and run by women. However, Brahma Kumaris is not a *woman-only* organization. It is administered, managed and run by women, the dadis (elder sisters), but men are represented in middle management and as leaders of local and regional centres as well as teachers. Brahma Kumaris has since its inception stressed the respect for equality between men and women. There are currently 60% women and 40% men in the organization today. The leadership model is based on "respect, equality and humility".

Many of the original group of 300 members, who started the school and organization became teachers, and some left India to set up centres in different countries. There was no master plan or strategy in terms of expansion. The organization grew

organically - and is still growing. Only on the African continent did Brahma Kumaris create a plan as they felt there was a special need to help the African countries.

Brahma Kumaris spiritual headquarters, Madhuban, are based on and around Mount Abu in the Northwest state Rajasthan in India. It is today a worldwide community, with a large infrastructure and approx. 6,000 centres, most of them in India. The centres are located in 110 countries throughout the world. Brahma Kumaris has a wide reach into the communities surrounding the centres. It is not a religion but promotes and teaches a belief system, philosophy and a way of life that focusses on world and inner peace and provides an educational platform for adults. The members or followers include all races and religious denominations.

Brahma Kumaris is internationally recognized at many levels for its work. Brahma Kumaris is an international non-governmental organization (NGO) of the United Nations, in general consultative status with the Economic and Social Council (ECOSOC). It is also affiliated to the UN Department of Public Information (DPI) and is an accredited observer organization to the United Nations Framework Convention on Climate Change (UNFCCC), Biological Diversity (CBD), Combat Desertification (UNCCD) and the United Nations Environment Program (UNEP).

The website states: “In promoting the purpose and principles of the United Nations, the spiritual trajectory of awareness, attitude, vision and action is used by Brahma Kumaris in the areas of the Millennium Development Goals, Climate Change, Food Crisis, Gender Equality, Global Public Health, Humanitarian Emergencies, Human Rights, Women, Children, Youth, International Decades and Days” (Brahma K, 2019).

5.4.2 The vision and mission

"I create my own world from inside out.
The thought energy I send out will shape my life".

The Brahma Kumaris vision is peace and happiness on earth. The vision has remained the same since 1937, when the organization was established. The mission of Brahma Kumaris is to establish or create the transition to a better and peaceful world through educational activities and being a role model for the surrounding environments. The

belief is that a world of peace and perfection exists, and that everyone should be invited to join the process of getting there. However, creating a world of peace and perfection requires change from within. Once people change other actions will follow, transition will occur and the problems facing us can be addressed and solved.

The core of the teaching in Brahma Kumaris is Raja Yoga. Raja Yoga is a meditation practice that addresses inner change by connecting with oneself as a soul and then with what it calls the supreme light (God) and to share with others. The teachings are communicated through daily mediations, talks, seminars, courses, workshops, conferences and through the internet. All courses, seminars, workshops and meditations are free and are regarded as community service.

Brahma Kumaris centres organize activities both in and outside their local communities. The teachings promote holistic health and agriculture to citizens in many areas of society. The centres also engage in social work. They look after the poor and street children, help to empower women, work with prisoners and offer daily meditation and courses in self-development and personal change. In addition, the organization has for approx. 25 years been engaged in research and development as well as implementation of renewable energy projects. BK is actively engaged in and with international climate and environment conferences, where their role is to promote lifestyle changes to protect the future of the planet.

Near the headquarters on Mount Abu the organization established in the late 80's a hospital, the Global Hospital and Research Centre, registered as a charitable trust in 1989, supported by various charities throughout the world. The foundation promoted and researched "a value-based model of modern health care, offering improved understanding in response to suffering and encouraging the development of positive thoughts and attitudes" (Global Hospital and Research Centre, 2019). At the hospital were several departments using a variety of medical systems and practices, i.e. the Western traditional, ayurvedic and homeopathy-based systems. Yoga and meditation were also taught at the hospital and the treatment of patients was holistic, taking into account the whole person both the physical, mental, emotional and spiritual. Treatments were free for poor people. There was an outreach mobile unit, which treated poor local communities in the remote areas.

5.4.3 Philosophy and values

"*I need to practice my values, no matter what the response is out there*".

The philosophy and values have remained the same since 1937. The teaching has changed with a slight adaptation towards the zeitgeist. The main philosophy includes primarily teachings on the soul and supreme soul. Brahma Kumaris practises and teaches Raja Yoga meditation which relaxes the mind and nurtures a healthy balance between the inner and outer worlds.

Core values

According to the interviewees Brahma Kumaris believes that the soul essentially contains the elements of peace, love, happiness, purity and power. Those are innate qualities. There are also core values. They include tolerance, peace, purity, compassion and understanding. There are other non-core values i.e. environmental concern, simplicity, responsibility and care. One must care for everything including things, plants, animals. The essence of life is caring. Simplicity is about feeling contented. A simple life does not mean that one must cut back, buy less etc., but it is the belief that when there is contentment, simplicity becomes a natural way of life. One chooses a simple lifestyle rather than compensate for dissatisfaction.

Brahma Kumaris believes in destiny. A person is destined to play the role of her/his life (as an actor) in the play of karma = action and reaction. Brahma Kumaris believes in re-incarnation of the soul. The way a person's life unfolds is a result of previous actions, good or bad. Past karma (actions) determines the way people live their lives today. The more good actions you perform the easier your next life becomes. They also believe that humanity is currently in the midst of a cyclical transition as the old systems are not functioning anymore. The climate, environment and economic systems are failing. To solve a problem the tendency is to invent a new technology, but often this creates further problems. Technology by itself is not the solution. A paradigm shift is imminent and needed. The shift has already begun but is not mainstream as yet. However, here and there people are changing their ways of being and their lives. The old system is breaking down, and the new is already present as “a seed growing up from the ground”.

Voluntary participation

There is no membership involved in becoming part of Brahma Kumaris. It was and still is a voluntary organisation, and people who join do not receive a salary.

The daily routine and principles for living include:

- "Meditation early in the morning.
- Taking part in the morning classes.
- Read/studying the Indian texts (Murli).
- Entertaining a vegetarian diet.
- Living in celibacy.
- Avoiding drugs of any kind.
- Optimising the spiritual efforts" (Brahma Kumaris, 2019).

The framework and principles for becoming a student of the Brahma Kumaris community can be challenging and do become problematic for participants from time to time. However, they can leave the organization, if and when they wish, as the essence of the community is based on voluntary commitment.

Each centre is financially independent and registered locally. The centre uses voluntary local help and support, and in addition the centre also gets support from the main Brahma Kumaris regional centres and headquarters in India, mainly through advisory services and availability of teachers.

Healthy growth

Income is generated from voluntary donations. The voluntary donation principle has been kept as a founding principle of the organisation. According to Brahma Kumaris this system works, because it is seen as part of a *healthy* growth pattern i.e. you receive as much as you give, and this is a healthy process, because it aligns with spiritual vibration and because it is seen as being just. Brahma Kumaris believes, that when income is given from the heart it is more valuable than something given with resentment. This generates “happy” money that can be utilised in a more positive way. Funding is given with good wishes, which again is considered as a kind of a special “fertilizer”. What is subsequently created with this type of income is seen as whole and as containing positive vibrations.

Brahma Kumaris believes in healthy and organic growth and the organisation is careful not to go into debt, borrow money or “put pay-day in the future”. Healthy growth is based on the availability of “good” money and a clear idea of what makes sense. That in itself is believed to have a healing effect on the world. This belief has developed and grown with the elder sisters (Dadis) at the helm. They developed a methodology for healthy growth. This meant that the institution expands sometimes at a slow and sometimes at a fast rate. In the recent years the demand and need for spirituality have grown and Brahma Kumaris is preparing to increase their capacity to embrace this.

5.4.4 Sustainability

Brahma Kumaris believes that sustainability is about long-lastingness. The interviewees commented that the concept can be compared to “how a mother looks after a child or a gardener looks after the garden”, “in that sense it is very close to spirituality”. Sustainability is regarded as a long-term commitment, not a temporary or quick fix, but something which needs to be nurtured over the long term. This requires tolerance, patience and changing the self, and these elements are seen as inherent values of sustainability. Some of the thoughts that were expressed by the interviewees included, that there is a lack of new visions like those of the Club of Rome and Limits to Growth and the call is to develop new visions supported by clean technologies and change of lifestyle. There is a need to collectively change people's attitude and awareness. Then it is believed, a healing process of the planet can start. Sustainability starts with the individual.

Personal sustainability

At the core of sustainability lies personal sustainability. Meditation and spiritual practices must be undertaken ongoingly and must be sustained over many years. A variety of focused meditations are recommended, for example on spreading peace and harmony on the earth as well as meditations on the natural elements. Spirituality is regarded as an inherent part of sustainability. It is seen as a way to be supported from the inside as a help to overcome or embrace short term obstacles and to live a life of simplicity.

"*Nature brings out your true nature*"

The natural environment is important in Brahma Kumaris. Walks in nature and time spent in nature are encouraged as well as outdoor meditation. "Nature brings out your true nature", the yogis say. They believe in preserving and not harming nature. The sun has a mythological meaning and is a deity called Suria. To cook directly by the sun is highly respected and is considered to have health benefits, hence the installation of solar powered steam systems.

5.4.5 The process

"It is the aim of Brahma Kumaris to highlight the relation between our awareness and the technology we choose. We believe that a holistic approach based on peace, cooperation and love is the key to a sustainable future".
- Solar Brochure, 2015 p. 4.

The sustainability movement in Brahma Kumaris was started and led by the three interview participants. The first environmental initiative dealing with the reduction of CO_2 emissions was started approximately 25 years ago in 1995. This was due to environmental considerations but also due to the general societal and environmental context in which the headquarters were placed. It was an environment and society where poverty, scarcity of electricity, shortage of fuel (people felling trees for firewood) and general environmental degradation took place. The climate was tough, plants did not grow easily. Once the trees were cut and the land became barren, it stayed barren. The pressure of the growing population was costly to the natural habitat.

A formal department for solar energy was set up in the nineties and since then many research and development projects with government support have been carried out. Brahma Kumaris became a registered research centre a few years ago within the ministry of science and technology in India. The research and development initiatives encompass green architecture, photovoltaic power systems and solar steam cooking systems, based on the Scheffler parabolic dish. Several such systems were erected on top of the headquarter buildings to create steam for cooking for the many thousands of participants and volunteers in Madhuban and on Mount Abu. Based on this experience the research centre has been setting up INDIA ONE, a 1 MW solar thermal power station which features 24-hour thermal storage. India One was set up by a separate trust the WRST (World Renewable Spiritual Trust), a daughter organization of Brahma Kumaris. The WRST has since the mid 90's become a key developer and

promoter of steam and energy systems for steam cooking and generation of electricity through PV systems. India One has partly been funded by the Indian and German governments (India One, 2019). Today the organization has installed more than 1400 photovoltaic systems in different BK centres in India. The current aim is to introduce solar energy to all the centres in the country and inspire them to install solar photovoltaic systems for power generation, solar hot water systems and possibly solar steam cooking systems.

The positive and result-orientated processes encouraged the undertaking of more environmental initiatives and sustainable practices in centres in and outside India. One of the most significant and ongoing initiative following on from solar power was the Environment Initiative, which has become the umbrella for all environmental activities. The Brahma Kumaris Environment Initiative was set up in 2009 in Denmark before COP 15. The initiative dealt with "awakening greater environmental awareness within the organization, as well as collaborating and learning from others through dialogue, partnerships, UN conferences and local initiatives. As a spiritual organization the main Brahma Kumaris aim is to help people experience greater well-being through inner peace and higher values" (Brahma Kumaris, 2019).

The Environment Initiative was based on five main principles:

- Living with simplicity.
- Buying compassionately.
- Using economically.
- Learning continuously.
- Sharing generously.

The environment initiative grew and spread to most centres around the world. From this initiative many further environmental activities followed, mainly initiated by the three sustainability leaders but also by volunteers worldwide. Some are described on the following pages.

Local centres and network

No official environmental department or section was set up in Brahma Kumaris headquarters to deal with sustainability issues, mainly due to the fact that an official department would require too much administration and manpower. People involved in

the initiatives preferred to spend their time on developing and implementing them rather than spending time on administration. The sustainability work therefore evolved in an organic and natural way so that individuals in the local centres could promote ideas and start activities. The aim was for sustainability to become an integrated part of all of the departments and centres.

A “green” team or network was set up to participate in environmental activities and to spread information and knowledge. The team inspired other centres to engage in environmental activities whilst allowing for the fact that these were at different stages regarding development and implementation. Currently more national “green” teams are being set up and the co-ordinators have the possibility to meet once a year to inspire and inform each other in order to implement sustainability practices progressively. They are updated on developments and can bring back information to inspire and empower people at the local centres. This is supported by current and up-to-date reporting from all the sustainability conferences that Brahma Kumaris participates in. More and more groups are set up to work together to create programmes and activities to further sustainability. Senior teachers help to communicate and promote the initiatives. Many seminars, talks and events were generated to spread the word both in as well as outside the centres. As an example, the centre in Copenhagen initiated a yearly outdoor public mediation on sustainability and peace.

Shoestring budgets

The environmental initiatives were based on voluntary contributions (working-hours) by individuals, mainly Brahma Kumaris followers. Events were organized on shoestring budgets with contributions from both the local centres as well as the main headquarters. The budgets were low, but output was high. The voluntary contribution factor was an inherent part of the essence of Brahma Kumaris and how the organization operated.

Partnerships and alliances

Brahma Kumaris has been working in partnership with environment organizations for many years. Being part of the COP conferences encouraged collaboration in order to organize side events. Today Brahma Kumaris is partnering many organizations both religious and non-religious. Within the UNFCCC there is an understanding that religion is important in dealing with climate change, and there is now an interreligious panel

called the Liaison Committee that Brahma Kumaris has helped to create. Representatives from all religions and spiritual traditions gather here to discuss climate issues and form alliances to develop ideas regarding how best to forward sustainability initiatives.

Other initiatives

Other sustainability initiatives undertaken over the years include the following:

Food consumption

Brahma Kumaris participants were and are vegetarians, which is considered important in implementing sustainability. There is also a growing vegan movement within the organization. Food and ingredients are blessed before being prepared and consumed. This is understood to aid digestion and adds to the spiritual, purifying and respectful dimensions of daily life and way of being.

Waste reduction

Recently Brahma Kumaris decided to make the organization plastic free. Plastic bags were some years ago banned by the local municipality on Mount Abu. Instead of plastic bags shopping was carried in cloth bags that could be reused, recycled and last longer. Additionally, food waste was kept to a minimum. The participants in Brahma Kumaris were asked not to put more food on their plates than they could eat to minimize waste. Simplicity in general was seen as an essential ingredient in sustainable behaviour. This also included the amount of personal possessions.

Yogic farming

Yogic farming has been practised for many years in Brahma Kumaris. Meditation practices were and are used in food production in the agricultural section of the organization. Research by SD Agricultural University (Gujarat) indicated that crops which were meditated on regularly, contained more nutrients, grew bigger and better and needed less fertilisers than crops grown without the meditation practices. Crop yields and mineral content were found to increase by a significant percentage with no extra cost to the farmer or the environment. Other effects that were observed included an increased sense of well-being and emotional resilience in the farmers. The method is now being practiced in other areas of India and is undergoing further research by universities in the country.

Local radio station

Brahma Kumaris operates a local radio station called Radio Madhuban. Many topics are broadcast for the benefit of the local communities i.e. environmental protection, renewable energy, spirituality as well as social initiatives. Twenty volunteers are working in the radio station which broadcasts 24/7. In addition, Brahma Kumaris has a TV channel which covers all of India. Programmes include spiritual knowledge as well as practical tips on non-violence, drugfree lifestyles, environmental protection.

"Sustainability is at the heart of everything we do at Radio Madhuban. We aim to make the local community aware of global challenges like climate change, resource depletion and food scarcity, and endeavour to encourage the community to make partnerships to implement innovative solutions to these challenges" (Radio Madhuban, 2016)

5.4.6 Lessons learnt

According to the interviewees the move towards sustainability was both a top-down as well as a bottom-up process with an emphasis on grassroot activities. Green became a buzzword, and it was what people spoke about at ground level that created the impetus for Brahma Kumaris to move the sustainability agenda forward. It was important in the organization that the sustainability movement grew organically with no power struggles.

Successful activities

Many activities worked very well. Some of these included talks, lectures, seminars both externally and internally in order to gain and promote information and knowledge. Brahma Kumaris attended many environment-related conferences and liked to stay abreast with the latest information and developments in the context of climate change and sustainable development issues. The members of the organisation enjoyed meeting each other in different parts of the world. It was an opportunity for participants and volunteers to get together. The local centres received visitors from other centres, joined in conferences and discussed the current issues. This is still so today. In this dialogue the environmental agenda was promoted both locally and internationally. The social aspect was important, and the local hosts made sure that guests from other parts of the world were taken on excursions to see interesting sights. The participation in environmental conferences and events around the world therefore became more

than an attendance at a conference. Instead it became a social event for all involved and helped to further the interest for the environmental agenda and cause.

Meditation

Green retreats including meditation and education were successful as were the local workshops, where the issues were explained and made understandable. An effective tool for promoting sustainability through personal focus and behaviour was the meditation practices. The practice was very simple, using simple and easy to understand techniques, simple knowledge, universal concepts and shared values. Values including love, acceptance, absence of anger and blame were experienced to be more easily assimilated and adopted through regular practice of meditation.

Theory versus practical implementation

The interviewees reflected additionally on the following. Forcing an activity on people or on a centre did not work. It had to be a voluntary engagement. The other aspect prevalent in the process was the fact that some members of the organisation were very hands-on orientated and some more theoretical. This meant that one part of the community was interested in tools and skills and in hands-on application. The other part was interested in visions of a new world and a new paradigm. Sometimes this was difficult to embrace and be able to communicate as each segment could be put off by the other.

Documentation and reporting

When external funding for i.e. research projects was received, the process and methodology, level of documentation and financial detailing were important for a successful outcome. Detailed project applications, project reports, validity, calculations and final results were needed when collaborating with governments. Brahma Kumaris became respected at government level due to the meticulous reporting and successful research results.

Long term financial gain

The institution was interested in generating financial benefit in the long term as Brahma Kumaris was depending on donations and therefore needed to look at costs continuously. The aim was to generate income from the production of energy in a more efficient and economical way. If a solar hot water system was installed the

financial aspect needed to be addressed as well as the environmental and social impacts. To be successful there must a reasonable payback. This aspect applied to all installations and new initiatives.

5.4.7 Difficulties/barriers

"Should we buy a new solar system, should it (the funds) go to the global hospital or should we renovate the kitchen?"

The interviewees talked about the difficulties encountered where there was resistance especially regarding the mindset of people within the organization. Some people understood environmental issues and found these important. Others had difficulty or stated that according to the Brahma Kumaris philosophy there was a natural cycle in human evolution and that a great transition was occurring anyway, so why engage in environmental issues. More and more, however, the seriousness of climate change was understood and support for initiatives increased.

Generational issue

There was a generational issue as people attached to Brahma Kumaris spanned three generations. The Brahma Kumaris' senior management belonged to one generation at the same time there were many young people in the centres around the world, who had grown up with the problems and effects of climate change.

Limited funds

Brahma Kumaris experienced a shortage of or limited funds from time to time. The question was then how the funds available were utilized and this raised the discussion of priorities. Which goals should be met first? The discussion was often not only about money but also about the priority of key goals as well as available manpower, about spiritual focus and teaching versus practical activities.

Growing organization

Brahma Kumaris was and is a growing organization. It started out as a family undertaking with the Dadis at the helm and a flat hierarchy. Today Brahma Kumaris has become an international organization that has to embrace a variety of legal, financial and administrative consequences. Issues like international law, setting up of charitable trusts, rules and regulations as well as employees' health and safety issues

especially in the retreat centres must be addressed and dealt with. All these considerations and issues have absorbed both time and capacity of the people within the organization.

Time and skills

As a follow on from the above time has been an issue as people within the different centres sometimes felt there was not enough capacity to implement the extra activities and initiatives. The voluntary nature of the work caused a lack of manpower from time to time. This factor was enhanced by the increasing administrative workload as the organization grew. Added to that the expanding organization required more and different skills. This created pressure on the existing infrastructure and resistance to engaging in new activities.

Essentially, sustainability fitted well within the framework of the philosophy, principles and values of Brahma Kumaris. There was therefore positive support for sustainability projects from the institution and it became understood and accepted that sustainability elements including environmental protection and renewable energy were integral to the wider spiritual development agenda.

5.4.8 Key factors

Positive attitude

Having a positive attitude was important and mixed with the spiritual element, this created resilience and strength in overcoming cutbacks, setbacks and embracing all manner of practical problems that occurred in the activities. Brahma Kumaris promoted the attitude that included having the right approach, not running away or becoming too frustrated, not being too pushy or impatient. Go with the flow, it was said. If it does not happen today it will happen tomorrow and if it does not happen tomorrow perhaps it is not meant to happen at all.

The personal factor

The aspect of “what's-in-it-for-me” must to be addressed. People must have a good feeling both regarding developing better health, having a clear conscience and achieving more happiness from the work they do. For example, "if the discussions are purely intellectual nothing gets initiated and nothing will happen". Regarding this particular aspect meditation was very helpful in achieving the sense of the world being

interlinked, that one was part of a bigger whole and that each individual had a role to play and a responsibility to the planet. That each individual mattered.

Collaboration and partnerships

Successful collaboration and working together was a key factor. Positive cooperation and collaboration with partners both internally and externally could make bigger projects happen as the collaborative efforts created a strong impetus.

UN representation

The UN representation role had a profound influence on sustainable development in Brahma Kumaris. The participation in panel debates, interviews, the staging of exhibitions and discussions with high level people including politicians had an impact both on Brahma Kumaris as an organization, as well as on the people meeting the representatives. A positive result was that UN participants no longer "lift their eyebrows" when a member from Brahma Kumaris (mostly wearing white gowns) stood up and spoke about soft values and spirituality.

Internal and external funding for projects

The problem areas regarding sustainable development included financial issues i.e. the cost of covering development of new projects. The project leader of the solar initiatives pushed for solar energy for many years, and when he was able to secure external funding from India as well as from abroad the solar power projects were more readily welcomed internally and became easier to implement.

5.4.9 Brahma Kumaris summary

Brahma Kumaris is markedly different from the other two examples in terms of content, framework, structure and financial make-up. It was selected as a sample where both social and spiritual elements were an integrated part of the activities of the organization. The overriding belief system including values, daily practices and behavioural disciplines is very different from those in mainstream society. It symbolizes in its inherent approach to life the way utopian intentional communities and smaller societies in a similar way have addressed sustainability issues as an inherent factor of their essence and emergence (Section 3.6.2).

In many mainstream organizations, businesses and communities, sustainability still represents an *add-on* element, an interference and a demand to do something different from the so-called *norm*. The evidence shows that there is a tendency to separate sustainability from the accepted normal way of life. This makes the shift from unsustainable to sustainable behaviour seem difficult, complicated and a sacrifice. In Brahma Kumaris the inherent vision, philosophy, values and way of life of the organisation are aligned with the idea and practice of sustainability. The implementation and work with sustainability is seen as a natural extension and evolutionary extrapolation of the Brahma Kumaris principles. Not for survival as with the Samsø case, nor for profit as with the Novozymes' case but as an approach that, it could be argued, is close to the essence of sustainability. The evidence for this is due to the fact that Brahma Kumaris's value set encompasses the spiritual and holistic aspects of humanity and sustainability. These are aspects that generally seem to be lacking in mainstream sustainability. Given that the essence of the Brundtland definition of 1987 deals with human wellbeing within a sustainability framework it could be argued that the Brahma Kumaris approach is positioned very close to this core.

5.5 CASE THREE: NOVOZYMES

"This is a fantastic story"

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Fig. 5.10 Novozymes Headquarters in Copenhagen.

NOVOZYMES A/S
Headquarters: Copenhagen, Denmark.
Founded in 2000.
Employees: 6,454 (2014).
Offices in Europe, Middle East, Africa, Asia, South America.
Revenue 2019: 14,3 billion DDK (£1,67 billion).
Listed on Copenhagen Stock Exchange.
Products: Enzymes, microorganisms, biopharmaceutical ingredients.
Sustainable development achievements:
87 million tons of CO_2 saved p.a. (using Novozymes products) through the application of LCA on 700 products, 30% renewable energy consumption, 31% women in senior management, 77% development for employees. Part of 17SDGs UN development group. (Novozymes, 2019)

Image removed for copyright reasons

Fig. 5.11 The search for biological solutions (Novozymes, 2020)

Image removed for copyright reasons

Fig. 5.12 Enzymes and sustainability (Novozymes, 2020). Fig. 5.13 Enzymes (Novozymes, 2020).

5.5.1 Introduction

Novozymes A/S is a global Danish biotech company. Its shares are listed on the NASDAQ OMX Nordic Exchange. The headquarters are in Copenhagen and the company employs approx. 6,400 people, many abroad. The company operates on most continents. Its main international operations are conducted in China, India, UK, US, Canada, Brazil and Argentina. Novozymes' revenue was 14,3 billion DKK (£1,67 billion) in 2019. On the website it states: "Novozymes is the world leader in biological solutions. Together with customers, partners and the global community, we improve

industrial performance while preserving the planet's resources and helping to build better lives" (Novozymes, 2019). "Novozymes' enzyme and microbiological technologies enable higher agricultural yields, low-temperature washing, renewable fuel and more. For example, the textile industry can save 70,000 litres of water and one ton of CO_2 per ton knitted fabric by using enzymes instead of traditional chemicals. That equals savings of 20–30 litres of water and a reduction of 0,3 kg CO_2 for each T-shirt produced. In 2015, the worldwide application of the company's products helped customers reduce CO_2 emissions by an estimated 60 million tons". The company strategy is: "Partnering for Impact" based on Sustainable Development Goal nr. 17 in the belief that the greatest impact can be achieved through partnerships with both private and public actors.

The company stated that in 2018 around 5,6 billion people used products on a weekly basis where Novozymes had added solutions in the form of microbes or enzymes. The company estimated that their customers together saved approx. 87,000,000 tons CO_2 emissions using Novozymes' products (Novozymes, 2019). The current strategy and purpose are based on the 17 SDGs, and the company has chosen six sustainability targets to work towards. The key words are reach, educate, catalyse, deliver, save and enable. The aims to be achieved by 2020 are:

- Expanding the customer base and reach 6 billion people with biological solutions.
- Educating 1 million people in topics such as biology, sustainability and the environment.
- "Catalysing" 5 partnerships for change by 2020 as the company believes that only through partnerships can global problems be solved.
- Delivering 10 innovative and transformative new ideas that will impact their customers in positive ways and contribute to reaching sustainability.
- Saving 100 million tons CO_2 in 2020 through the application of their products thereby also saving on chemicals and raw materials.
- Making sure that all employees have development opportunities in order to achieve their full potential (Novozymes, 2019).

"Wash clothes clean in cold water".

Novozymes started in 2000 as a de-merger from Novo Nordisk, a global biotech company well-known for its diabetes medicine. At that time the enzyme business was not developed fully, and no opportunities were mapped. The general prediction for Novozymes (within the group of companies) was that the new company would barely last three years. However, despite hard times the company developed a brand stating: “Novozymes, unlocking the magic of nature”. It engaged in research which was biology-based. Scientists discovered micro-organisms, that produced the enzymes "that can help wash clothes clean in cold water". A vision was created for how biological solutions through enzymes were going to make a profit for the company at the same time as taking care of the environment and people. A set of values were formulated including social responsibility, ethical behaviour, environmental issues and credibility. The ambition was to achieve a turnover of 10 billion DKK (1,186 billion £) by 2010 through sustainability measures.

The interviews confirmed that sustainability was always part of the new company’s DNA, inherited from Novo Nordisk whose CEO for many years had introduced and engaged the company in sustainable development. In the 80’s there was international focus on enzymes and their impact on human health. Did enzymes cause allergy and other health-related issues? Novo Nordisk invited international scientists and critics to visit the company and discuss the issues. SustAinability (UK) was one of the collaborators at this time and later became consultant to Novozymes during the start-up years. As a consequence, and due to the criticism, Novo Nordisk decided that openness and transparency should be key values in the company, and the focus on sustainability increased. To begin with the environmental work was carried out by *grassroot* type people and *green* pioneers. The work was seen as an "add-on" and "hippie"-related. But as Novo Nordisk started to gain international respect for its work with environmental issues attitudes started to change. This focus and values were inherited by Novozymes. Novozymes started out in 2000-2001 with a small environmental team in collaboration with the communication's section, helped by external consultants. The environmental part was still regarded as an add-on until 2006, when a new head of sustainability was employed. The environmental department became business orientated. It grew in size and is today a key and essential element in Novozymes with employees in Denmark as well as abroad, dealing with decision-making at executive level, external relations and communications.

Novozymes' products were enzyme-based. They reduced process temperatures, the use of "harsh" chemicals and water as well as energy consumption. As stated in the introduction the company managed to reduce CO_2 emissions by an estimated 60 million tons through its customer base. There were many sustainability benefits inherent in the Novozymes enzyme products, and it was this technology measured through life-cycle analysis (LCA) that created the foundation on which the company philosophy, purpose and activities rested. Novozymes believed that sustainability must be the purpose for as well as guide business actions.

5.5.2 Vision and mission

"Sustainability was front and centre of our strategy in 2009"

Novozymes chose to focus on ambition, purpose and strategy rather than giving a vision or a mission statement and has since the start developed a number of ambitions communicated through purpose statements, goals and strategies. These have dealt with choosing business directions that embraced both profit, environment and people. The first was instigated by the CEO and was as mentioned above: "Novozymes, unlocking the magic of nature" with the goals of generating profit and doing good regarding the environment and people.

A second time in 2009, "sustainability became front and centre" of the strategy, which was quite revolutionary in business terms then. The purpose was about "making the world a better place". Later, in 2015 supported by the CEO and President a new leap was taken where sustainability was no longer an add-on but became the *reason for being*. It became the purpose of the company to innovate, develop and deliver sustainable solutions globally. No longer only supplying enzymes but also becoming a trusted advisor to customers providing insight, knowledge and facilitation. The purpose was to partner for impact and strive to create the "highest positive impact" on the world. Novozymes set nine new 2020 targets, where six related to sustainability and three were traditional business targets. The belief was that when the company was able to deliver on the six sustainability targets the financial results would follow.

The purpose is today "Partnering for Impact" based on Sustainable Development Goal nr.17, where the company works to achieve its goals within the parameters of the

SDGs in collaboration with governments, universities, NGOs and customers. Novozymes believes that collaboration is a must if the problems the world is facing are to be solved (Novozymes, 2019). Novozymes was one of the first multinationals to take on the 17 SDGs as a strategy for business and aims to gradually over the next few years deliver innovations that address the needs of the world within the context of the goals.

Through sustainability focus, development and holistic thinking whilst also making a profit Novozymes became well-known in the world of business. The company was invited to become involved in the development of the 17 SDGs by the UN in 2012. The Head of Global Sustainability, who drove the company's sustainability transformation, took part in the work on the SDGs and was in 2016 named SDG Pioneer together with eight other people from around the world, chosen by UN Global Compact among 600 nominations submitted by 100 countries.

5.5.3 Philosophy and values

"We have been honest and haven't tried to trick anybody"

It was noted in the interviews that Novozymes had a strong value set right from the start of its operations in 2000. Values included transparency, trust, openness and honesty. In addition, there was an adherence to quality of work, attention to detail as well as bringing added value to the market. The company had recognized through past experience the value of openness and transparency, where other companies were ruled by mistrust, keeping activities and problems hidden, Novozymes saw how important a transparent, scientific approach to its operation was. This openness helped the company ensure that its operations could stand scrutiny by the outside environment and thus contributed to its success.

From a practical operational point of view the company took pride in operating with a high degree of professionalism and systematic attention to detail. This aspect was also part of the communication and PR activities that included high quality of design. In addition, a collaborative approach was taken both outside in relation to customers and stakeholders as well as within the company between the departments. The applied set

of values and principles contributed to the business success. Credibility became a value associated with Novozymes and its sustainability approach.

5.5.4 Sustainability

"*Sustainability is everything we do, not what we say*"

In Novozymes the understanding of sustainability was based on the assumption that sustainable development initiatives could "save the world" at the same time as "do good business". The company aligned with the Triple Bottom Line model (Section 2.9.1) which advocated the combination of being socially and environmentally responsible as well as being financially successful. There was a merit in sustainability generating money as this prevented the sustainability discourse from being "hippie-like". Sustainability was seen as a serious business factor and became a driver for Novozymes in the context of expanding the market, gaining customers, growing the business and becoming a market leader.

The company's role was also to do what was best for society as the approach was that sustainability could create "a global society for the long run". The company parameters were therefore wide and embraced issues such as human rights, labour conditions, climate change and resource mitigation.

Right from the start the Novo Group of companies wanted to act responsibly and be businesses that were fair and pay back to society mainly due to the vision of the CEOs. The essence of Novozymes' sustainability philosophy can best be expressed through the following statement from the interview with the Head of Global Sustainability: "My philosophy is that being a responsible company, behaving well, rewarding people, taking care of the environment is a must, is fundamental, is the baseline. But it is not going to save the world. If you want to make the world a better place you need to innovate, (create) better solutions that deliver value to people with much less cost to the environment, and this is what we target with our new strategy and purpose. We target problems in the world. We find solutions, we innovate and deliver them, we make money and invest more in doing that again and again. Because that is unlimited. You can give donations and do charity but that is limited. But if you can make business the driver, the force for good, then it is unlimited".

5.5.5 The process

'How can you make all these things work together, so you can use sustainability to become more successful as a company because you deliver and prioritize innovations for a better world?'

The process to change from a traditional company to a company where sustainability became an integrated factor and a driver for success both in terms of social, environmental as well as economic perspectives took approx. 10 years for Novozymes. The legacy from the mother company, Novo Nordisk, brought with it a type of product, a set of values and a way of thinking that paved the way for further development of sustainability thinking. However, without inspirational leaders with drive and ambition Novozymes might not be where it is today. The process of getting there was a strategic journey and was not taught by outside experts but was a process that emerged from within the company with valuable lessons learnt progressively. The company went from working with sustainability as a pioneering add-on to environmental reporting, and to finally including it at the heart of all business operations. A strong business approach to sustainability was developed as a driver of innovation combined with the use of LCA tools to assess and measure environmental impact of the product range as well as supply chain products. This gave the company the scientific, data- and impact-based as well as innovative platform from which to operate and expand. The sustainability profile became a sale- and marketing parameter.

5.5.6 Lessons learnt

The process of transition at Novozymes contained several key factors which are outlined below:

Visionary CEO's and dedicated sustainability directors

Several CEOs and Presidents of the Novo Group of companies saw the importance and value of pursuing and integrating sustainable development in their businesses, starting as early as the 80's. They gave the head of sustainability the support and freedom to achieve the required results as top-down support was essential when wanting to implement and drive a sustainability transformation to this extent. The head of sustainability thus managed to transform the company and drive the implementation process into every department of the business nationally and internationally.

Sustainability Board

A sustainability board was set up in 2006 consisting of the vice-presidents representing the key functions of the company covering sourcing, production, sales, marketing, investor relations, communications and human resources. As leaders of their respective departments there was "a short distance" from a decision being made to it being implemented. When an agreement to implement a sustainable factor was reached it was the responsibility of the vice-presidents to make sure it was carried out. The head of sustainability proposed ideas to the sustainability board, where some were rejected and others accepted, especially those with an innovative business approach. The board became a strong and essential tool in the transition of Novozymes. The head of sustainability had an opportunity to "discuss priorities based on trends and issues to define strategies, projects, initiatives and to drive the implementation" into operations across the departments. Today the board no longer exists as sustainability has become an integrated part of all company activities, but it was an important factor in achieving the success of the undertakings.

When a programme for sourcing was needed with regard to introducing more sustainability criteria in the selection of suppliers, a team was set up consisting of both sustainability experts as well as experts from the department. This structure was a successful vehicle for introducing sustainability into activities and operations as it also served as a filter to reject ideas that were not relevant for the company.

LCA: Life Cycle Assessments

"I saw life cycle assessments as the way to understand new opportunities for business and expand the scope"

Life cycle assessments (LCA) were first introduced in 2004 in Novozymes to evaluate environmental impacts of the bio-solution products looking at issues such as raw material extraction, production, usage, transportation and final disposal or recycling (Novozymes, 2019). The process then expanded into evaluating products of customers and competitors to compare benefits and setting sustainability criteria. In this way Novozymes was able to help their customers develop and evaluate their own sustainability claims thereby creating a value-added service for the market. The LCA methodology, also called the *cradle-to-grave* assessment, became the key lever to

translate sustainability from being an add-on to becoming the foundation for the development of Novozymes into a sustainable company (Section 2.11.1).

The environmental assessment methodology meant that Novozymes could claim that their products not only made the customers' products better regarding performance but also saved costs, resources, materials and energy, lowering the environmental impact for their customers as well as for themselves. This aspect brought the added advantage that Novozymes became both a supplier as well as an advisor to their customers, giving lectures and workshops on how to lessen the environmental impact and integrate sustainability across the board.

The LCA data was gained through own and customers' research and was then peer reviewed externally in accordance with ISO14040/44 (Pre-sustainability, 2020). The work on and with LCA made Novozymes an expert in the field ahead of its competitors. LCA was applied in a "holistic" context meaning that all aspects of the products were analysed. The findings were then documented, systematized and stored in databases.

5.5.7 Difficulties/barriers

The transition process was according to the interviewees not easy as there were no blueprint or other examples for success to refer to. Many barriers and obstacles had to be overcome. Some of the main barriers and obstacles to the process are outlined below.

Scepticism

At the beginning there was a great deal of scepticism towards sustainability within the company. The sales department maintained that the customers did not ask for sustainable solutions. The belief was that costs would increase and there would be no added value. There was confusion in the marketplace as to the merit of sustainable solutions combined with a high degree of ignorance regarding the essence of sustainability, and what sustainable development meant. A mindset shift had to take place to make both executives, employees as well as suppliers and customers see opportunities instead of barriers. The introduction of LCA helped to overcome this barrier. By talking the business language, presenting data and facts and proving that sustainability could pay changed the attitudes.

Business “games”

Playing straight, not being arrogant and not playing the usual business games “probably” slowed the process especially at the executive level. The working atmosphere was in some departments ruled by traditional competitiveness with infights and some degree of backstabbing. Feeling too passionate about sustainability could be a hindrance to discussions and cause resistance and scepticism at board meetings. A certain level of detachment, hard core business language and persistence had to be applied to gain respect and collaboration from executive peers.

Lack of resources

Realising the goals with regard to implementing life cycle analysis in the company range of products required new resources in terms of finances. When introducing LCA to the various departments there were always discussions about finances and resources. Budgets did not at the start include extra money for analysis and assessments, and the departments expected the work to be paid for by the sustainability department. When the value of sustainability was established, communicated and demonstrated, the departments became more willing to collaborate and channel resources for the analysis of their products.

Secret/closed club

At the beginning, the sustainability department was by some regarded as a closed or "secret club". The sustainability team was small with new people. They were regarded with scepticism as they were speaking about “sustainability” and life cycle assessment which most employees in general did not know much about. When the sustainability team was able to communicate their business knowhow and willingness to collaborate the mindset changed. As the work developed more collaboration between the sustainability team and their other colleagues took place and today LCA is integrated and mainstream, and sustainability has become part of the business culture.

5.5.8 Key factors

“We were just in front of the wave……. Timing is key. We are in front of the SDG wave. I am surfer at heart. Global waves are cool…”

Timing

One particular initiative created an important breakthrough early in the transition and in the understanding of sustainability as a factor that could both drive business and gain new customers. It was the initiative by the head of sustainability to approach Walmart, a large international retail corporation. Walmart decided in 2005 to become a sustainable retailer. The sustainability factors gained by using enzyme technology interested the corporation. They saw the benefits and invited their customers and suppliers to hear about the Novozymes products at a conference in 2008. This was the start of a successful liaison, where Novozymes could promote sustainable products to suppliers around the world, validated by Walmart, whilst gaining new customers.

As the quote above indicates, timing was important. Walmart was approached at the right moment when the corporation was poised to implement its vision to engage in sustainability but didn't know how to go about realizing the goals. Novozymes was invited to provide both insights and solutions and was at that time ahead of the competition. This gave them an advantage in the market. They were asked to help develop and deliver the SDGs on the global scene right at the beginning. The positive feedback from the PR department encouraged and helped the company further the process of implementing sustainability within its operations as well as gaining new customers.

PR and communication

Good PR, clear and open communication were other key factors in the process. Right from the beginning there was an understanding in the company of how important well-designed, open and clear communication was to the market and in stakeholder relations. The reputation as being one of the first corporations working with sustainability within the business strategy and infrastructure gained Novozymes worldwide attention. The company was one of the actors asked by the UN to help develop the 17 Sustainable Development Goals from 2012 onwards and was subsequently asked to present its work at DAVOS and at other international congresses including the COPs.

Clear and consistent values

Right at the start Novozymes adopted a set of values that was based on transparency, openness, honesty and pragmatism. The company saw its role as being a successful, science-based and responsible business and contributor to sustainable development nationally and internationally. A company that was fair and paying back to society. This value set was communicated to society and stakeholders through its behaviour, its employees and through communication and reporting. The company was regarded as being honest. These aspects worked well internally in the working environment, where the employees saw their jobs as being meaningful and felt proud of working there. Added to this there were other benefits such as good working conditions, fair pay, regular health checks, fair treatment and "good food in the cafeteria".

Quality of people

"*It is hard, but the way forward is to continuously recruit people, who are smarter than yourself. And make them perform.”*

Sustainability has until recently and in the main been driven by passionate and engaged leaders and pioneers. This has been no exception in Novozymes. As mentioned earlier the CEOs of Novozymes believed in sustainable development and in running a responsible company. They employed the right people to drive the change. The high quality of Novozymes’ sustainability directors was essential. They were given the freedom and support to drive the change as well as given direct access to decisions-makers, thereby ensuring that agreed strategies were acted upon immediately and integrated throughout the company.

The challenge facing the head of sustainability meant that he had to have a coherent and synergetic team. The team had to know the essence of the business, the working and documentation of LCA, have the right approach to change the mindsets of the other sectors within the company, have the communication skills to communicate ideas and initiatives at CEO level as well as communicate with customers, suppliers and society at large. A good team spirit was essential, and the head of sustainability advocated a flat structure, where honest talk was encouraged.

International profile

An additional factor in the Novozymes transition was its international profile. The transition process placed the company on the world stage. It participated in the development of the 17 SDGs and was given in an advisory role within big multinational companies. This position as well as the fame of the head of sustainability brought the company positive PR and a high-profile reputation. Opportunities to inspire and be a role model for other companies followed in its wake alongside many opportunities to promote sustainable development through practical examples and case stories.

5.5.9 Other reflections

"If you interview me in 5 years' time, I will hopefully say, that the greatest move I ever made was to make Novozymes the first and strongest mover on the company business role in relation to the UN SDGs".

The final reflections from the interviews included comments on new development initiatives. Novozymes is now translating the SDGs in areas it can work with, respond and deliver to, building a systematic methodology and management tool to make it a reality. It is gradually over the next 5-10 years going to develop and apply more new innovations to meet the needs of the world as defined by the 193 countries and formulated in the Sustainable Development Goals. The company purpose and strategy are to innovate, develop and deliver sustainable solutions to the world and to do this in partnerships with public and private organisations and businesses. Novozymes' current corporate strategy was launched in 2015 and is as earlier mentioned "Partnering for Impact" and their purpose statement says: "Together, we find biological answers for better lives in a growing world – Lets rethink tomorrow". A new set of long-term sustainability targets launched at the same time includes social, environmental and financial goals (Novozymes, 2019).

5.5.10 Novozymes summary

'This is a fantastic story'

From the start the sustainability process was not a tried and tested undertaking. There were no KPIs (Key Performance Indicators), no pre-set structures or guidelines on the integration of the construct across the company although a TBL approach was followed. It was therefore an emergent process, learning and developing by doing.

The sustainability team had to be both flexible, convincing, trustworthy, professional and data orientated. Respect was gained from the other departments through presentation of scientific and commercial facts rather than soft value promotion. New systems and structures had to be invented and implemented along the way. The move from employing environmental engineers to employing hardcore business consultants with a McKinsey background as well as people with data- and computer expertise indicated how the development process unfolded. In addition, communication and documentation knowhow remained an essential element to be able to talk about the benefits of the enzyme technology and sustainability to both customers, organisations, governmental and intergovernmental organisations and the world at large.

The quote at the beginning of the report, repeated above, summarizes the way Novozymes' transition to sustainability is viewed. A transition that started with visionary and dedicated leaders supported by a commercially viable, scientific as well as practical methodology through an LCA process. Clear purpose, strategy and goals were set by the executive team. A sustainability department was set up that had the innovative as well as psychological acumen to change the mindsets in the company. It evolved and mainstreamed the product range in a sustainability context, introducing marketing as well as communication parameters that were necessary to drive the change.

The Novozymes story is a success story which is seen as a model for businesses worldwide to be inspired from and follow. This does not guarantee that the company will succeed in the long run from a business/profit point of view. Novozymes shares have had ups and downs on par with other businesses on the stock market. However, it can be argued that Novozymes has achieved a solid sustainable development platform. It can also be argued that lessons learnt from the transition process could be transferred and adapted by other companies wishing to engage in sustainable development.

5.6 CHAPTER SUMMARY

The three narratives were told in a language that stayed as close to the interviews as possible. The replies to the questions were thus as different in tone and content as

were the cases regarding characteristics and contexts. The narratives reflected the different cultures that each case represented. However, even if the words and sentiments used to describe the processes as expressed by the interviewees were dissimilar, there was a clear progression of events and initiatives related to the transition process in each case that was comparable and could be analysed.

As the sustainability initiatives in the cases were not undertaken due to external regulation or legislation, but were people-led movements, the examination of the processes was essential to the research as each case differed. As the outcomes were based on the synergy of a variety of factors, the examination of these factors was also essential. The findings from the analysis of the case studies therefore include both the factors that the cases have in common as well as the factors that relate to each individual case, context and circumstance.

It is evident from the three narratives that there were differences as well as similarities in the transition processes undertaken. In order to appropriately address the research questions the analysis will thus examine both the process elements and lessons learnt, including the difficulties or barriers experienced by the interviewees. Chapter 6 is dedicated to examining and analysing the narratives. A cross-case analysis is undertaken as well as an additional analysis of the process factors dealing with the elements as pointed out above.

The cases exemplify what can be achieved by individuals, communities and businesses. It is due to initiatives such as these that the sustainability agenda has made some progress since 1987. The positive perspective this offers is the knowledge that the necessary changes can be made despite barriers, adversity and difficulties, provided the motivation and determination are present.

CHAPTER SIX
ANALYSIS AND DISCUSSION OF THE CASE STUDY DATA

"A case study is not about finding facts but gathering evidence. This evidence, though, is gathered for the purpose of developing an argument.... "- Thomas, 2011, p. 197.

IMPLEMENTATION FACTORS:

● Common elements to three cases
■ Common to two cases
▲ Individual factors

	SAMSØ	BRAHMA KUMARIS	NOVOZYMES
LEADERSHIP			
Strong leadership	●	●	●
Key people	●	●	●
APPROACH			
Business case	▲	▲	▲
Professional approach	●	●	●
Masterplan or strategy	■		■
Steering com/ Sust. board	●	●	●
Top-down	●	●	●
Bottom-up	■	■	
Organic/flexible process	■	■	
COLLABORATION			
Collaboration/partnerships	●	●	●
Working groups/teams	●	●	●
Interest groups/network	■	■	
Public meetings	▲		
PRACTICAL			
Hands-on/practical initiatives	●	●	●
Visible results	●	●	●
Projects/installations	●	●	●
EDUCATION			
Courses/training/workshops	●	●	●
Seminars/conferences	●	●	●
COMMUNICATION			
Communication int/ext	●	●	●
Marketing & PR			▲
International communication	●	●	●
Documentation/reporting	●	●	●
Systemization			▲
Databases			▲
PERSONAL			
Whats-in-it-for-me?	■	■	
Personal sustainability	■	■	
Values	●	●	●
RESEARCH	●	●	●
FINANCING			
Internal			●
External	●	●	
DEVELOPMENT			
Local initiatives	●	●	●
International initiatives	●	●	●
Expanding services		▲	▲
Further development	●	●	●

Table 6a. Cross-case diagram (Kurlansky, Blincoe, 2020)

CHAPTER 6: ANALYSIS AND DISCUSSION OF THE CASE STUDY DATA

6.1 INTRODUCTION

A case study approach was undertaken to address RQ2: Can practical examples of implementing sustainability in society indicate ways in which a state of sustainability can be achieved? The research design consisted of open-ended interviews and a cross-case examination of three diverse contemporary, practical cases undertaking implementation processes. The aim was to assess whether experiences from the processes could indicate practical ways with which to engage in sustainable development initiatives with positive results. The case study also addressed RQ1: What are the barriers to achieving sustainable development in the current dominant paradigm? Analysis of the data in terms of addressing RQ2 revealed that there were sufficient factors common to the three case processes that may be universal and applicable. In terms of addressing RQ1 the analysis revealed specific difficulties and barriers to sustainability that were significantly different to those documented in Chapter 2 and Chapter 3 and highlighted challenges that had to be met in order to achieve the desired results.

As sustainability initiatives in the cases were not undertaken due to governmental regulation and legislation but were decided internally, an examination of each of the processes was essential to the research. The processes were created by the people and teams within the individual contexts and did not, in two of the examples, utilise any particular template or model. Novozymes mentioned the Triple Bottom Line (Section 2.9.1) as the model on which they built their business strategy for sustainable development. The processes were based on a synergy of a variety of factors relating to the specific frameworks.

The content of the chapter includes the following main sections:

- Cross-case analysis: Comparing the three cases.
- Process-based analysis: Comparing factors relating to each process.
- Lessons learnt: Key positive insights and difficulties/barriers.
- Other reflections, observations and summary.

Based on the first set of raw interview data a long matrix was made that listed the responses across the three cases. A process-based table (see Table 6c, Section 6.3.2) was drawn up to focus on the particular process commonalities. The table charted a chronological approach to the analysis. This was an essential step in order to create comparative clarity for further distilling of the data. This led to a third analysis the result of which is shown in Table 6d (Section 6.4). It contains a condensed list of key factors in the case processes that ensured successful outcomes.

6.2 CROSS-CASE ANALYSIS

6.2.1 Case contexts

Logistics

The first part of the analysis of the data related to the interview logistics in terms of when they took place, who were interviewed and the venue for the interviews. Similarities were documented, mainly concerning the settings and contexts for the interviews. This added to the validity of the information gathered. Similarities covered aspects such as the time, the place, the costs and the roles of the interviewees and are shown in Table 6b.

INTERVIEW LOGISTICS
• **The interviews took place around the same time both in 2014 and 2015 as well as follow-up in 2019.**
• **All interviews were conducted on the premises of the cases. The researcher travelled to the places of the interviews.**
• **There were no costs incurred nor transport/travel time or any other inconveniences for the interviewees.**
• **The people interviewed had similar roles in the transition process.**
• **The leaders were interviewed in each case as well as the key people in the transition teams.**

Table 6b. Interview logistics.

The conclusion to the above was that a comparable foundation for the data existed.

Vision and mission

The second part of the interview data related to the questions regarding the context or background for the sustainability processes. In this instance relating to the visions and missions for the initiatives. The information gathered revealed significant differences between the cases. The units differed in terms of their intrinsic nature, make-up and raison d'etre. It was a determining factor in the sampling, that the three cases had to be as diverse as possible to be able to assess whether any universal denominators existed in terms of the transition processes and lessons learnt. Thus, these differences were to be expected.

The initiatives were undertaken voluntarily and internally as a response to a variety of opportunities, threats, challenges, ideals or practical endeavours. In the case of Samsø the incitement was to generate new energy, enthusiasm and a survival mechanism for the island. Its main vision was to become a 100% renewable energy island (Section 5.3). For Brahma Kumaris the impetus was viewed as an extension of the principles and values of the organization as well as a logical and practical cost saving initiative in a place where, for example, solar energy was easy to harvest. Brahma Kumari's vision was concerned with creating a better and peaceful world (Section 5.4). For Novozymes the incentive to embark on sustainable development was both commercial, marketing and profit-orientated as well as value-based. It became the purpose of the company to innovate, develop and deliver sustainable solutions globally whilst increasing profits. (Section 5.5).

Philosophy and values

The first similarities occurred in the philosophy and value responses. Even if each case had specific belief systems and sets of values and were not similar in terms of the words chosen to describe them, it can be argued that the sentiments inferred were homogeneous. They indicated that the three cases shared a philosophical and ethical value-base concerned with responsible and mindful behaviour, environmental concerns and the value of collaboration. For Samsø key values included trust, respect, wisdom, transparency and empowerment. Brahma Kumaris mentioned values such as simplicity, responsibility, care, tolerance, peace and purity and those of Novozymes were transparency, trust openness, honesty, credibility and quality.

The role of sustainability

The next part concerned the definition and role of sustainability as well as the implementation of sustainability initiatives. The descriptions of sustainability differed according to the personal views held by the interviewees as well as the official approaches by the cases. The roles of sustainability were similar, but essentially relating to the Brundtland definition. The interviewees in Samsø believed that sustainability included the creation of resource balance and promotion of holistic elements such as spirituality and stewardship. The key words symbolizing the role of sustainability for the interviewees in Brahma Kumaris were the creation of harmony and well-being where spirituality was an integrated part of the equation. In Novozymes the roles mentioned by the interviewees included sustainability being the purpose and guide for their business actions.

In an organizational context Samsø's approach was seen as top-down management driven, as well as a bottom-up community-orientated activity with the aim to create a better life and a better island. For Brahma Kumaris the approach can best be coined through their five principles: Living with simplicity, buying compassionately, using economically, learning continuously and sharing generously. For Novozymes the role of sustainability dealt with saving the world and doing good business. The conclusion was that the definitions and roles of sustainability differed in the three cases each relating to the nature of the organization/island with a common aim to create a better life and saving the world.

6.3 PROCESS-BASED COMPARISON AND ANALYSIS

6.3.1 The processes

General observations

As the case study was conducted mainly to focus on addressing RQ 2, a cross-case analysis, as mentioned above, was carried out on the process responses to document the factors (Table 6c, Section 6.3.2). Many elements were similar as were the process flows. The undertaking was new for each case and the processes seemed to have emerged organically according to the aims and objectives. No unexpected events appeared to have caused any serious or significant setbacks during the transition period. The development was a step by step process where the involved participants had to learn, adjust and course correct along the way. The impetus for work with

sustainable development was strong. Each case had a clear vision and idea of what to achieve but did not necessarily know how to achieve the specific results and whether they would succeed.

Some key observations were made on the processes, based on the experience of the interviewed teams with regard to the implementation activities. One main observation pointed to top-down processes instigated and led by one person or a group of people. At the same time, the data showed the importance of subsequent bottom-up processes. For example, Samsø viewed this as essential in order to include the islanders from the start. Individual bottom-up initiatives were equally important in Brahma Kumaris, whereas Novozymes regarded implementation as a strategic decision, making sustainability a business case where the leaders took the initiative to develop and implement the strategy. The observations also included information on the timespan of the processes. It took Samsø less than the designated 10 years to become a 100% renewable energy island. Brahma Kumaris had at the time of the interviews worked with renewable energy and environmental initiatives for approx. 25 years but created results within the first 10 years. Novozymes met its objectives almost 10 years after it started to embed sustainability into the company and make it an integrated part of the business. The importance of the time aspect is the indication that organizations and communities such as those reported above can engage in sustainable development activities and reach significant results over a period of approximately 10 years when employing factors such as those documented in the following section.

The process factors

The results of the process analysis are shown in Table 6c on the following page. There are elements that were similar to all three cases, to two cases as well as elements that pertained to the individual case. The table categorizes the process factors under key common themes. It was not possible to set an exact order of priority of the groupings as the analysis noted the occurrence of each factor rather than the extent to which they impacted the process. However, the processes had a start, a middle and a finish as documented in the narratives in Chapter 5. Some of the process activities could be ascribed to these periods although there was no specific record of when an activity was introduced into the process. It is an open question whether each of the individual

6.3.2 Factors in implementation processes

IMPLEMENTATION FACTORS:

● Common elements to three cases
■ Common to two cases
▲ Individual factors

	SAMSØ	BRAHMA KUMARIS	NOVOZYMES
LEADERSHIP			
Strong leadership	●	●	●
Key people	●	●	●
APPROACH			
Business case	●	●	●
Professional approach	●	●	●
Masterplan or strategy	■		■
Steering com/ Sust. board	●	●	●
Top-down	●	●	●
Bottom-up	■	■	
Organic/flexible process	■	■	
COLLABORATION			
Collaboration/partnerships	●	●	●
Working groups/teams	●	●	●
Interest groups/network	■	■	
Public meetings	▲		
PRACTICAL			
Hands-on/practical initiatives	●	●	●
Visible results	●	●	●
Projects/installations	●	●	●
EDUCATION			
Courses/training/workshops	●	●	●
Seminars/conferences	●	●	●
COMMUNICATION			
Communication int/ext	●	●	●
Marketing & PR			▲
International communication	●	●	●
Documentation/reporting	●	●	●
Systemization			▲
Databases			▲
PERSONAL			
Whats-in-it-for-me?	■	■	
Personal sustainability	■	■	
Values	●	●	●
RESEARCH	●	●	●
FINANCING			
Internal			▲
External	■	■	
DEVELOPMENT			
Local initiatives	●	●	●
International intiatives	●	●	●
Expanding services		■	■
Further development	●	●	●

Table 6c. Process-based factors: Factors common to three, two and single cases. (Kurlansky, Blincoe).

activities would have impacted the processes more effectively if introduced at other specific times, as well as the degree to which they did impact the results. However, there was at that time no written detailed documentation of the activities available. The interviewees had to use their memories to recollect the processes, that had taken place over a number of years.

Factors common to all three processes were:

- Strong leadership
- Key people
- Making a business case
- Professional approach
- Steering committees or similar
- Top-down initiative
- Collaboration and partnerships
- Working groups/teams
- Practical activities
- Visible results
- Projects/installations
- Educational activities, courses
- Seminars and conferences
- Internal and external communication
- International communication
- Documentation and reporting
- Strong value sets
- Research activities
- Local initiatives
- International initiatives
- Further development

Factors common to processes in two cases were:

- Developing masterplan or strategy
- Bottom-up initiatives
- Organic/flexible process
- Interest groups and networks
- What's-in-it-for-me elements
- Personal sustainability
- External financing
- Expanding services

Factors relating to a specific case included:

- Public meetings

- Marketing and PR
- Systemization
- Building database
- Internal financing

6.4 CRITICAL PROCESS FACTORS

The third analysis of the data resulted in a condensed 10-point list of critical process factors. The result of the analysis is based on the list of factors in Table 6c. above as well as on the responses to the question regarding lessons learnt during the processes (Section 6.5). The summarized list is shown in Table 6d. and each of the components is described on the following pages.

10 KEY PROCESS FACTORS

1.	**Strong leadership**
2.	**Professional and flexible approach**
3.	**Collaboration and partnerships**
4.	**Visible results and practical activities**
5.	**Educational activities**
6.	**Communication and documentation**
7.	**Personal aspects**
8.	**Research activities**
9.	**Financial internal and/or external support**
10.	**Continuing development activities**

Table 6d.: 10 key process factors.

1. Strong Leadership

Strong leadership and top-down activities instigated by the key people in the organizations/island were common to the three cases. In each there was a clear vision and strong goals even though these differed as explained earlier.

For Samsø the key goal was the survival of the island. The people who wrote the application for funding for the competition were the people who eventually made up the team that led the process. The leader of the team and now CEO of the Energy Academy was and is highly regarded and respected both on the island, in Denmark and due to the success also internationally. He was a 7-generation Samsing and was therefore respected at the onset by the local population. The core team consisted of people living and working on Samsø and were effective in achieving results collaboratively.

For Brahma Kumaris the key goal was the promotion of world peace. Their first sustainability initiative was instigated by an engineer, who was part of the management of Brahma Kumaris. His expertise, ideas as well as his personal drive and positive results in building the first solar disk park at the headquarters gave him the support needed from the leaders. In addition, the European head started to support initiatives internationally especially within the UN. The Danish leader initiated the Environment Initiative which became the umbrella for all environmental initiatives. The three people created the initiatives in the organization, developed new activities progressively and are still doing so.

For Novozymes the profit motive in a sustainability context was at the core of its objectives. The initiative to embark on sustainable development in Novozymes was taken by the CEO of the company supported by top management and promoted as the business strategy. The Head of Corporate Sustainability was engaged to lead a team whose task it was to implement the initiatives throughout the company. The leader was a pioneer in sustainability and business and became internationally known due to the sustainable development initiatives. Each member of the team had specific skills in relation to sustainability including technological and managerial knowhow.

2. Professional and flexible approach

The general approaches to start the sustainability drive were comparable.

The processes were in the main managed by one or a few key individuals. Master plans or strategies were developed by Samsø and Novozymes. On Samsø a steering committee was formed to help create the masterplan, support the team and drive

the activities. The island promoted a bottom-up process from the start as the whole of the island needed to become involved in the renewable energy initiatives. The development process was flexible, involving many citizens to decide on numerous factors to make the initiative a success. The CEO stressed in the interview the importance of professionalism and detailed planning and preparation. He also stressed the importance of the ability to listen to people and be flexible, not push too hard and stop the process when needed.

In Brahma Kumaris individuals from middle and top management led the process. The initiatives emerged in an organic and flexible step by step approach with no specific overall long-term masterplan or strategy. A renewable energy department was set up to support the establishment of the solar disk park. In addition, all managers of the world centres gathered in India once a year to discuss and plan activities. The support for the sustainability initiatives increased as the installations of solar disks and the generation of steam for cooking started to produce results. The development expanded to include the top leaders as well as gaining interest at ground level. The impetus was to open up for all followers of Brahma Kumaris to start sustainable development initiatives in the local centres worldwide.

In Novozymes the approach was business orientated from the start. In addition to the head of sustainability leading the sustainability team a sustainability board was created comprising all departmental directors and the CEO. Here strategies were formulated, discussed and agreed upon. A strong business approach was necessary to gain the support across the company departments as well as from the sales force who needed to believe that sustainability was a profitable business tool.

3. Collaboration and partnerships

The importance of collaboration, co-operation and partnerships were highlighted in all three cases. This included collaboration internally and externally, including working with a number of external partners especially with regard to Brahma Kumaris and Novozymes.

The collaborative focus in Samsø was on citizens and the municipality and working and interest groups were formed. Numerous public meetings were organized to inform and include all inhabitants of the island. Later, when the island started to generate results partnerships were formed nationally and internationally.

Brahma Kumaris focused on creating internal networks and working groups to embed initiatives within the organization. Later external partnerships became important specifically in relation to UN and other international activities.
In Novozymes the sustainability team needed the support from all departments to implement sustainability throughout the company. External partnerships were equally essential for the promotion of the initiatives and company expertise.

4. Visible results and practical activities

The demonstration of sustainability in practice, hands-on activities, physical and visible results were an important lever for the continuing support by the many levels of people involved in the development processes.
The erection of the first windmills on Samsø as well as the positive results from energy-saving as well as renewable energy initiatives in the private dwellings on the island secured the continued support for the project.
In Brahma Kumaris the establishment of solar disks on the roofs of the headquarters as well as setting up of the first solar disk park gave rise to support from the leaders in the organization and secured funding from the organization itself. The physical manifestation of the solar disks generated financial support for further research both from the Indian as well as from the German governments. Subsequently many other initiatives were established as documented in Chapter 5.
In Novozymes the objectives were clear with an aim for a profit of 10 billion DDK (£1,199 billion) over 10 years, which they achieved. Internally the increased profits, meeting the targets as well as the goodwill from big customers in terms of advisory board memberships etc. convinced the leaders and managers throughout the organization that sustainability was profitable. The sustainability team therefore experienced increased support and interest from all levels of the corporation.

5. Educational activities

Educational activities in terms of training and developing new skills were key factors in the transition processes.
On Samsø both workshops and seminars took place to inform and update the citizens. Local carpenters, electricians, plumbers etc. were given training in new methods, tools and technologies to help change local heat and electricity installations in the homes to new renewable energy units.

Brahma Kumaris organised a variety of seminars and workshops to train, inform and update the members in sustainability initiatives. This ensured that the whole community internationally was informed and updated with regard to the development and spread of activities specifically in relation to the main events organized by the leaders and management at the bi-annual UN COPs.
The transition in Novozymes was led by the sustainability department in collaboration with the individual departments in the company. Workshops and seminars on LCA and sustainability issues were given to the people directly involved in the activities. The sales force had a specific task in terms of promoting and selling the new sustainable products and had to be trained for this purpose.

6. Communication and documentation

Communication and documentation in terms of information and updates were essential in all cases. Samsø harboured around 3,700 citizens, Brahma Kumaris had approx. 1 million followers in centres worldwide. Novozymes employed 4,500 people worldwide. All had a large network of collaborators and partners. To gain support, develop further collaboration and ensuring that people had the knowledge and skills necessary for the transition, high levels of communication both internally as well as externally were considered to be essential. Communication took the form of internal memos, meetings, seminars, conferences, publications as well as ongoing activity in the media and on social media channels.
On Samsø this secured the support from local citizens, from the local municipality and at national level from collaborators on the mainland.
Brahma Kumaris informed their followers in the centres worldwide with the aim to include them in the activities and to inspire to engage in further and expanded activities. The documentation of Brahma Kumaris activities at the UN conferences became an important information and inspiration platform for discussions within the organization.
In addition to engaging in communication activities as mentioned above Novozymes was highly profiled in the Danish media due to its size and importance as one of the 20 most successful companies on the Danish Stock Exchange. Branding and PR were important to highlight the company's sustainability goals and objectives. The aspect of changing the company to embed sustainability initiatives and practices involved a systemic approach to engage all levels of the company. Additionally, the development of databases for storing LCA processes and results was an important factor in

systemizing the activities, achieving the objectives and ongoing improvements of the practices.

7. Personal aspects

Personal aspects were significantly important to the successes especially in two of the cases, Samsø and Brahma Kumaris. The question of *what's-in-it-for me* was mentioned as a key factor for the citizens on Samsø to become engaged in the project. When the leading team could demonstrate that there was money to be saved and earned, opportunity to acquire new skills and new jobs and a possibility to create new and more business for the islanders, many chose to become involved in the initiatives. The *what's-in-it-for-me* aspect was not as prevalent In Brahma Kumaris and Novozymes. In Brahma Kumaris personal sustainability was one of the reigning principles. The organization believes that sustainability starts with the individual and this is part of the philosophy and principles of the organization.

In Novozymes the personal aspect was less visible and was not part of any official ideals or principles. However, the value-base of Novozymes remained strong throughout the process and this appealed to the employees' own values and beliefs. As mentioned in the case narrative people felt good about implementing sustainability and felt proud to be part of an organization that promoted this issue.

8. Research activities

Research including innovation initiatives in relation to sustainable development initiatives were undertaken by all three cases. For Samsø the research was focused on the development of the windmill park and other renewable energy initiatives. For Brahma Kumaris research into developing the solar disk park and other environmental projects were undertaken at different times in the process. In Novozymes research into the development of new products in terms of new biological solutions was key to the success of the company's sustainability agenda as was the progressive embedment of LCA in products and production systems.

9. Internal and/or external financing

It can be argued that without specific economic support or funding sustainable development could not take place. For Samsø and Brahma Kumaris to change direction and engage in building new installations and develop new products would not have been possible within existing budgets. These two cases did not own capital

or have budgets allocated to furthering environmental initiatives. In fact, sustainable development activities are rarely started within existing budgets apart from in the business sector and in the case of Novozymes the costs were covered internally. Samsø started the energy project by winning a competition and was through this able to generate sufficient funding from a variety of external sources to finance the transition process. Later in the process the islanders themselves invested in the windmills thereby generating further financing. The top leaders of Brahma Kumaris resisted supporting the financing of the activities at the beginning of the process as documented in the case study. The financing of the solar park was made possible by the German as well as the Indian governments. Later when there was evidence of cost-saving as well as an increased international sustainability profile, new initiatives were funded by the organization itself.

10. Continuing development activities

As the processes unfolded, initiatives were realised and results started to become visible, there is evidence that further development actions were taken that widened the reach of the transitions. On Samsø a number of local business development initiatives were undertaken. In addition, more visitors came to the island to learn about renewable energy methods and about how the island had achieved the results. As a consequence, Samsø received international attention and today the island is working with many partners worldwide. The island is continuing the process of implementing sustainability and now within the framework of the 17SDGs.

Brahma Kumaris is progressively expanding sustainability activities both at the headquarters as well as in centres around the world. The high profile in relation to the UN gives the organization a wide international focus and its work in the COPS is expanding to build more partnerships across disciplines.

Novozymes achieved their original objectives and have set new ambitious goals for the future. They expanded their services during the sustainability transition and are currently carrying out advisory services to many companies in the supply chain as well as within their customer base. Novozymes has due to its sustainability agenda become a key member of the UN sustainable development team and was actively engaged in the development of the 17 SDGs.

6.5 LESSONS LEARNT

The interviewees were towards the end of their interviews asked what they thought the key lessons as well as key barriers were in the transition process from their personal perspectives. The answers added an additional dimension to the process components outlined in Section 6.4. The lessons learnt were valuable as there was evidence of variety between the cases. This could be due to the fact that the interviewees responded to the questions not only from an objective perspective but from their own personal experience. These lessons learnt, including the barriers, were as such experienced at an individual level and were of a more reflective nature. The elements are distilled below but not described in detail as many are a repetition of descriptions of the process factors outlined in the previous section.

The common key lessons learnt to achieve the desired outcomes were:

- Strong and dedicated leaders.
- Business-led process.
- Education and training.
- Good communication, documentation and inspiration.
- High international profile.
- Personal inspiration and/or gain.
- Short term and long-term financial gain.

Some of the case specific lessons were:

- Clear brand, purpose and goals were essentials for Novozymes as was the creation of the sustainability board during the start-up phase of the development programme.
- The LCA analysis was mentioned as a key factor to success in Novozymes.
- Network, partnerships and collaboration were mentioned specifically by the Brahma Kumaris team.
- The organic emergent process was mentioned by BK.
- Sharing and respect for cultural values were important lessons in the Samsø context.
- Timing in terms of being ahead in the sustainability game was regarded as a key element, specifically in Novozymes.

6.6 DIFFICULTIES/BARRIERS

Examining the barriers was the secondary aim of the case study research. The findings were valuable because they were different from those observed in Chapter 2 (Section 2.12.1). The case barriers were based on practical experience in a local development process being viewed as blocking, slowing down the processes or generating negativity among the people involved. The case specific barriers are shown in Table 6e.

CRITICAL CASE BARRIERS
1. **Conservative; scepticism; fixed mindsets**
2. **Lack of relevant skills and competences**
3. **External factors**
4. **Lack of funding/financial pressure**
5. **Lack of participation**
6. **Pressure to succeed**
7. **Negative gossip-power games**
8. **Too much passion**

Table 6e. Case barriers.

As the barriers added other perspectives to the research enquiry regarding the barriers to sustainability there is merit in addressing each one.

1. Conservative/fixed mindsets; scepticism; generation gap

The interviewees mentioned resistance to the new initiatives. For Samsø this seemed due to conservative and fixed mindsets prevalent among the islanders. The generation

gap between the older and the younger generation was pointed out. This was specifically so in Brahma Kumaris, where their leaders were elderly. In Novozymes the sustainability team was regarded as closed, slightly *hippie* orientated and not mainstream. The key tools to overcome this resistance were to be inclusive, provide ample communication, show results and prove that sustainability could make a profit and make a positive difference.

2. Lack of new skills and competences; getting the wrong people on board

There was a recognition across the teams that the right skills and competences were essential. For Samsø getting the wrong people onboard was seen as a barrier factor. The people involved in Brahma Kumaris also felt pressure due to the voluntary aspect of the way the organization was run. There was more frequently a conflict regarding the priority of what to focus on as well as lack of the right skills due to the expanded organisation. Novozymes had financial ability to employ the right people at the right time. As is documented in the cases people with new skills were crucial and were seen as a vital factor in the ongoing sustainability initiatives. Getting *the right people on board* can be difficult especially in a transition process. The key was to be flexible and make changes as the process unfolded and new competences were required. Training was an important factor in this context as the cases demonstrated.

3. External factors

External factors can impact processes and are factors outside the control of the cases. Samsø, for example, mentioned changes in national regulations. The external environment cannot be controlled, and a certain degree of flexibility must be allowed to embrace such interference.

4. Lack of funding; financial pressure

The development processes were constantly under pressure mainly due to lack of funding and/or financial support. It can be argued from the evidence presented that practical, physical and visible demonstrations of the merits of the transition processes eased this pressure. Successes led to more support and generated more financial support both internally as well as externally.

5. Lack of participation

To succeed, participation by people at all levels was seen as essential. Lack of participation was therefore regarded as a key barrier to achieving the goals and objectives. To alleviate this occurrence aspects such as inclusivity, ample communication and information-sharing were needed. The what's-in-it-for me factor played a significant role especially in the Samsø context.

6. Pressure to succeed

All teams felt pressurized in terms of generating results and succeeding within a set timeframe. Sometimes a certain amount of pressure can be constructive to a process. However, too much pressure can lead to stress and burn-out and can have a negative impact on results. Individual pressure and stress were observed in the Samsø process, where the island had committed to become a renewable energy island within 10 years. Even though this was achieved in seven years much pressure was felt, especially by the leading team. In Brahma Kumaris the process to include sustainability in the organization activities was emergent with no pressure to achieve results within a specific timeframe. In Novozymes the sustainability team had the possibility to progressively increase the competences and support systems. However, they had to produce results according to the agreed strategy.

7. Negative gossip; power games

Negative gossip was pointed to specifically in the case of Samsø and Novozymes. It was felt that back talk, negative gossip and for Novozymes internal power games were destructive to the processes.

I have led a number of organizations and have found that there will always be some form of negative gossip as well as power games being played out in teams whether in small or large organisations. It is necessary to ensure that this is dealt with and contained as the toxicity caused can be very destructive to an organization or a group of people. This is specifically so where significant change is occurring such as in these cases. Some of the tools to avoid negative gossip are clear, frequent and ample communication, regular participatory meetings, participation and shared responsibility. Authenticity and straight talk by leaders help curb power games and power struggles. Clear roles and responsibilities are important. Successes and failures should be shared and not solely placed on one individual. Having a motto of *we* rather than *me* helps.

8. Too much passion

The head of sustainability in Novozymes mentioned *too much passion* as a barrier to success. He felt that his own keen passion for sustainability hindered the implementation process and thought that had he been more detached he might have overcome obstacles more easily in particular in dealing with his superiors and peers.

6.7 OTHER REFLECTIONS

Additional aspects were revealed in the interviewees' final comments. They covered topics such as the importance of size, less governmental influence, theory versus practical aspects, meditation as a powerful and effective tool. Samsø reflected that to succeed a certain size of community would work best. The island also wanted more local responsibility with less governmental interference from Copenhagen. Brahma Kumaris pointed out that a gap existed in their organisation between the theoretical aspects of sustainable development versus the practical, and they experienced bridging this as a challenge. They stressed the importance of meditation as a tool for personal sustainability, which they regarded as an integral part of sustainable development. A specific success factor for Novozymes was the aspect of competition to "being ahead of the game". They saw this as an advantage in their marketing and PR strategy.

6.8 SUMMARY

"*As a research method, the case study is used in many situations, to contribute to our knowledge of individual, group, organizational, social, political and related phenomena*" - *Yin, 2009, p.4.*

The case study research was primarily undertaken to explore and assess whether there were commonalities in the processes in the three cases. If affirmative, could these indicate ways in which sustainable development initiatives could be undertaken and sustained with positive outcomes. Secondly to examine whether the findings could assist in answering RQ 1 in relation to barriers to sustainable development.
The evidence gathered from the comparisons and analysis of the case data pointed to answers to both research questions. There were many parallel components and elements in the development processes. Despite the different words used to describe

what was experienced it can be argued that the essence was comparable. This was found to be so both in terms of the experiences gained by the interviewees in the context of the processes, the lessons learnt as well as the barriers encountered.

The critical process components or factors as well as experiences were relatively clear as were the reasons for why they mattered. The observed and recorded factors were not tested in more, other, different, larger or smaller cases. Further research into more cases with successful outcomes could therefore enhance the validation of the results as suggested in Section 7.5. The case studies, however, can serve as examples of initiatives that have achieved set goals while employing similar methods and experiencing similar challenges. The factors inferred from the analysis can from the basis for a framework to be utilized and tested in other similar sustainable development contexts.

Addressing RQ1 looking into the barriers to sustainability the analysis pointed to elements that could both be ascribed to hindering development of new initiatives in general as well as to sustainable development in particular. The barriers observed were additions to those documented in Chapters 2 and 3 on sustainability and utopia and will be discussed in Chapter 7. In the literature review most barriers were theory-based and results of reflections by researchers and writers and pointed to a universal perspective. The barriers observed in the case study were experienced in real-life situations and might therefore be described as practice-based and case orientated. What seems to be the most critical elements required to overcome problems when embarking on sustainable development initiatives is simply the determination and the will to do so as the case study demonstrated. Barriers can be overcome, and problems can be solved if the motivation is strong enough.

Whether the findings can indicate ways in which a state of sustainability can be achieved can therefore now be discussed. From an affirmative perspective it can be argued that if the three cases had been perfect examples of sustainable development and had achieved 100% sustainability, the factors could be recommended as a specific development tool towards building a sustainable society. However, the three cases were not sustainable in the context of the Brundtland definition of 1987 even though they achieved successful outcomes in terms of their own sustainable development contexts and goals. As sustainable development initiatives set within an

existing non-sustainable environment, they were successful. It is from these attempts, lessons can be drawn, developed upon and made available for a wider use by organizations, companies and intentional communities who want to progress sustainable development. It is however doubtful whether a state of sustainability can be achieved using the process factors alone. The research has previously pointed out that the nature of the barriers to sustainability that are embedded in the current societal structure is such that a profound systemic shift is needed for change to happen. This shift would require the dismantling of the embedded economic development theory and replacing it with a new theory of sustainability. The new theory would have to advocate more profound changes to society than the current sustainable development theory suggests. In addition, it would include an evaluation of the results achieved since 1987 as well as guidelines to building resilience in the face of the increasing unprecedented disasters. The plan should advocate detailed solution models based on experience as well as current knowledge and technology. No such detailed investigation appears to exist, at least in the mainstream, that includes a clear vision of what a sustainable future might entail.

The positive results of the research into the cases, however, must not be underestimated as it is undertakings such as these that can point to key issues to be addressed if a coherent strategy for a top-down as well as bottom-up intervention is to be undertaken to achieve a sustainable state. The cases can serve as encouraging examples that can give inspiration and insight into positive transitions and as such, they can help guide future processes. As sustainable development initiatives they have shown the degree of impact and change possible within the current system.

CHAPTER SEVEN
DISCUSSION AND CONCLUSION

"Real change requires the truthful acceptance of "what is"
- Harvey, 2019, p.13.

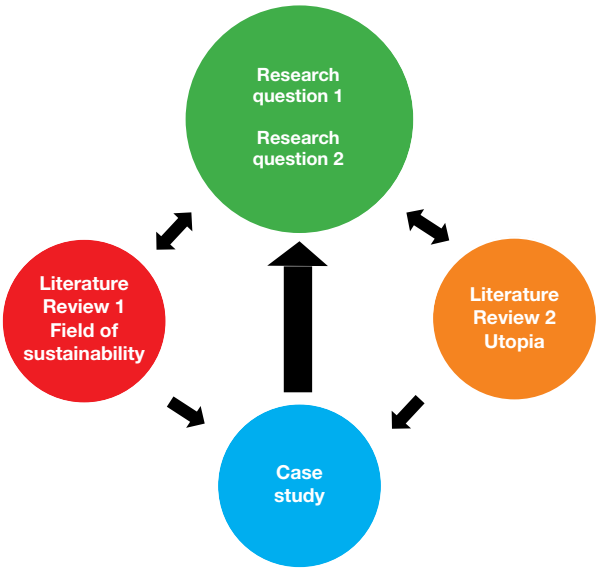

Fig.7.0: Research design (Kurlansky,Blincoe)

CHAPTER 7: DISCUSSION AND CONCLUSION

7.1 INTRODUCTION

7.1.1 The scope of the research

This research project was essentially undertaken to examine the essence and the practicality of sustainability. The reason behind this is described in the introductory chapter as being the consequence of working with sustainability over three decades both in the context of theory, developing organizational, educational content and programmes as well as working with developing prototypes for implementation purposes. The query arose from a puzzlement and a frustration that the more pressing the needs have become for embarking on sustainable development the more apparent are the hesitation and reluctance to systemically embrace and implement sustainable development. The decision was therefore also to explore the barriers to sustainability in the current paradigm and whether practical attempts could inform the process to create a sustainable state. Both a theoretical and a practical approach through literature reviews and a case study were chosen to address the queries.
The research questions were as follows:

RQ 1: What are the barriers to achieving sustainable development in the current dominant paradigm?

RQ 2: Can practical examples of implementing sustainability in society indicate ways in which a state of sustainability can be achieved?

To address the topics three areas of examination were undertaken: the field of sustainability spanning the period from the publication of the Brundtland Report till the present as examined in Chapter 2, the field of utopianism in a historical perspective in Chapter 3 and thirdly a case study consisting of three contemporary cases documenting the process of implementing sustainability initiatives as narrated in Chapter 5. This defined the investigative foundation from which the body of knowledge was generated to address the research questions and achieve the aims and objectives.

7.1.2 Areas of research

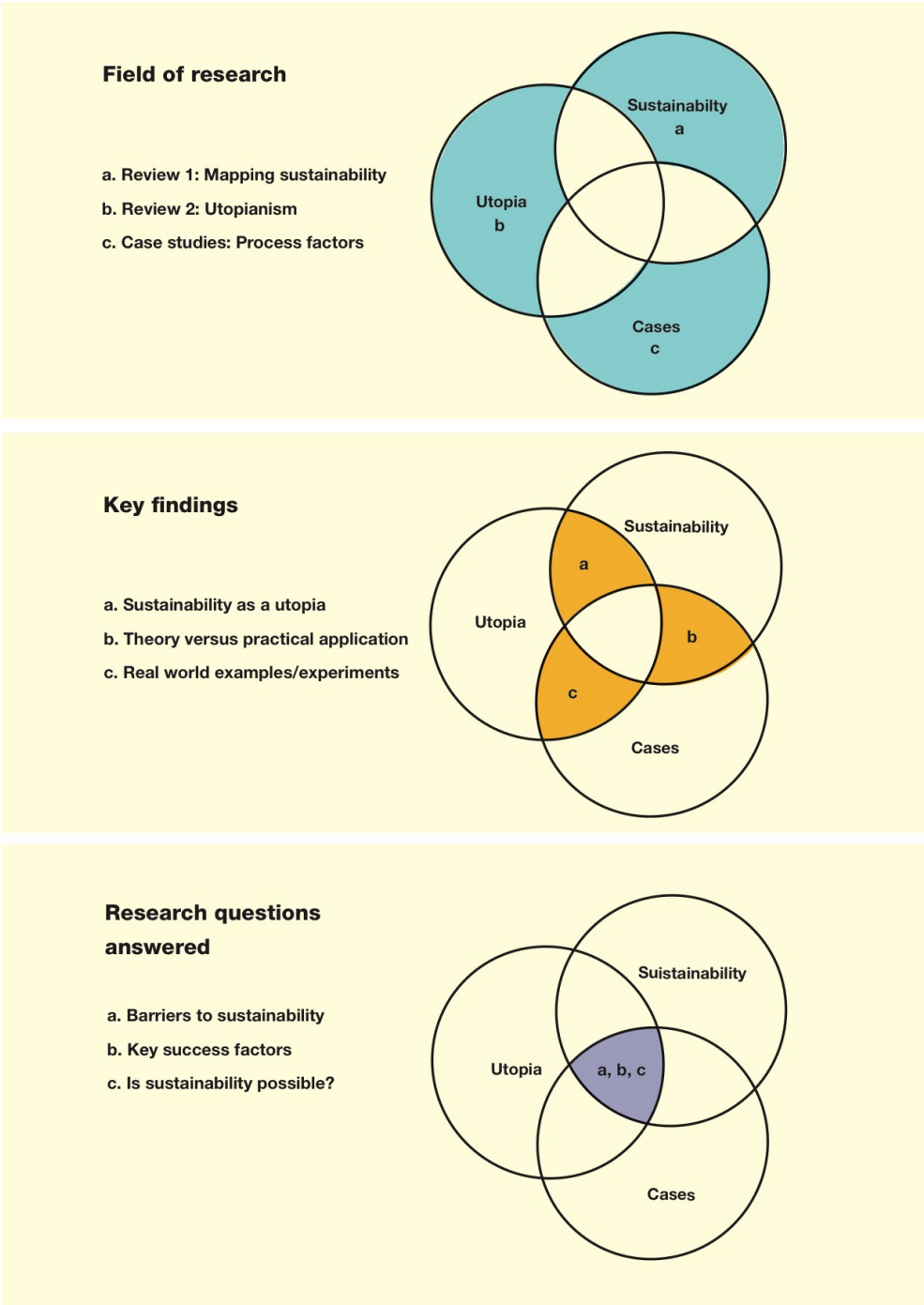

Fig. 7.1: The three research areas: 1. Sustainability, utopia and the case studies. 2. Where they overlap new knowledge is generated. 3. The RQs are addressed at the centre (Kurlansky, Blincoe).

Fig. 7.1 maps the three areas of investigation. The first section shows the fields of research: the two literature reviews and the case study. The middle section indicates the areas of new knowledge generation. This encompasses the utopian/sustainability

exploration, theory versus practical application of sustainability as well as real-world examples drawn from utopia and case studies. The third section indicates the area of core findings and the answers to the RQs.

This chapter addresses the aims, objectives (Section 1.5) and the research questions (Section 1.4) starting with the key findings from the literature reviews and case studies, followed by a discussion on the barriers in relation to RQ1. RQ2 is addressed through the case study analysis advocating ten critical process factors supported by a number of core commonalities including those inferred from the utopian experiments. The chapter concludes with suggestions of further research, contribution to new knowledge and concluding remarks.

7.2 KEY FINDINGS

The findings address the enquiries from two perspectives: the overall or universal and the specific or local. The evidence in the research suggests that the barriers to sustainability must be seen in a universal context as the realisation requires a new global system. The barriers to sustainable development can be drawn from the existing paradigm as sustainable development has been created within in this framework and is regarded by researchers as a development theory similar to other theories of development.

7.2.1 Essential sustainability

To make the reflections and answers to the research questions as pertinent and relevant as possible relating to the two perspectives it is important to briefly revisit the definition of sustainability and sustainable development and highlight the essence. It is evident from the review that many definitions and interpretations were generated after 1987 to make sense of the constructs or make them operational.

The sustainability definition contains the following critical focus points:

- Fulfilling of humanity's basic needs including quality of life.
- Humanity's overuse of non-renewable resources.
- Humanity being dependent on the natural habitat.
- Meeting the basic needs within the carrying capacity of the planet.

For humanity the underlying requirements are therefore based on ethical principles including responsible behaviour towards each other and towards the natural habitat. In order to achieve this, development activities within the social, economic as well as environmental fields of our societies must be brought into balance, resulting in a systemic shift from a purely economic growth trajectory to one where humanity and nature are valued equally. This transition is both profound and transformational and requires a change of the current dominant paradigm. This essential fact leads into the discussion about sustainability as a utopian construct as it entails a profound global change from one way of operating to another.

7.2.2 Sustainability as a utopian construct

"*Utopianism has always been concerned with humanity as a whole, regardless of geographical location, and over the centuries it has become increasingly universal, espousing a plan for the entire planet.*" - *Harvey, 2019, p.6.*

It is clear from the literature review that new radical ideas of a society, that is different and better than the existing, belong to the world of utopia. Examining sustainability in this context aids the understanding of the construct. From the field of utopia knowledge can be drawn from previous attempts at societal change. Visions of better futures have always occupied great minds. Many new ideas have emerged over time, and some have been tried and sought implemented. Many experiments have failed but some have succeeded as the research documents. The impetus currently is that sustainability has become a universal necessity and is no longer just an idea for a new development theory.

The current circumstances within the existing paradigm pose a threat to humanity that is unprecedented in history, according to the research and documentation produced and published over the past decades. The utopian aspect of sustainability therefore elucidates the challenge addressed in this research to bring about sustainability, especially as the present and required scale of change appears overwhelming and where failure is not an option.

The dystopian aspect in the discourse on utopianism is also relevant in this context, as the 20th century has seen a substantial increase in dystopian predictions and scenarios through literature, films, TV series and computer games. New utopian ideas

have decreased, utopianism has become unpopular and is now regarded with some degree of contempt. The most recent literature mentioned in this research deals with extreme scenarios relating to environmental issues, climate change, collapse of societies and paints apocalyptic futures for mankind. These expressions might be viewed as barriers to creating a sustainable future. They reveal a lack of persuasive positive visions that can inspire and motivate people to create the necessary change. Current researchers and writers maintain that humanity is faced with choosing between two different extrapolations of the present: A utopian future consisting of a new sustainable paradigm or a dystopian future where no change of direction occurs, and humanity is faced with extinction through a multitude of disasters. One of the more recent examples is the work of Professor Jem Bendell, who predicts the latter scenario and expands on this in his Deep Adaptation work, where he asks people to embark on a journey of preparation for the coming derangement (Bendell, 2019).

7.2.3 Theory versus practical application

The literature review on sustainability addresses the work of researchers and writers who over the years have examined and described the predicament of sustainability and the aspects that make up the construct. They have described the current dominant paradigm in great detail, looked at historical as well as current perspectives relating to why sustainable development is necessary. They have produced and advocated many models and methods to bring this about. Their data has derived from past and current events, statistics, own research and theories and the work of other researchers. Some real-world documentation on attempts to implement sustainability has been recorded and discussed.

There is overwhelming evidence that despite the research, theory-making and attempts at making sustainability operational the required results have not been achieved. Many development initiatives have since 1987 been undertaken by civil society through pioneering programmes and projects, governments have passed environmental laws, applied rules and regulations and businesses have talked about corporate social responsibility, triple bottom line and circular economy initiatives. However, the wide gap between theory and practical application still exists. The reasons for this have been discussed to some degree as the literature review documents. An observation from the research is that the more and the closer the sustainability construct is examined in the context of the existing paradigm the more

barriers are uncovered hindering its realisation. The barriers appear to be as interlinked and as interdependent as the sustainability factors themselves and are both universal and specific as the following section documents. The gap between theory and practical application is therefore not due to lack of research but due to the extent of barriers to achieving sustainability.

7.3 RESEARCH QUESTION 1

RQ1: What are the barriers to achieving sustainable development in the current dominant paradigm?

"The concept of sustainability is fairly straight forward. Achieving sustainability in the real world presents a daunting and complex challenge".
- Kibert et al, 2012, p.2.

The evidence from the research indicates that there are two main levels of barriers. The first and most significant barrier to global sustainability is the current economic, political system itself. How a paradigm shift is evoked can be investigated and Chapter 3 on utopia makes an attempt at this by looking at similar contexts in history. However, as it is an extensive topic it requires further and deeper research as mentioned in Section 7.5. Utopia can explain the background and the need for such a shift but cannot define an exact plan or way forward. The research on the case studies contains the famework for such a plan and include some of the elements required in a transition process.

The second level of barriers to sustainable development are found within the existing system, and a number of specific but diverse barriers to implementing sustainable development emerged from the research and will be discussed in the following sections. The list in Table 7a. on the following page summarizes the critical aspects inferred from the literature reviews and from the case studies. Some of the barriers are of a universal nature and encompass main aspects of our cultural and traditional make-up. Some are specific and more easily defined. Most of the barriers are structural and some are procedural. Overcoming them will thus require both structural and procedural measures.

7.3.1 Critical barriers

The first Table 7a. is a condensed list of universal barriers that emerged from the reviews and secondary data. It could be argued that the list represents barriers imposed from *the top-down.* Each of the barriers in Table 7a. are addressed and discussed. The second list, Table 7b. compares the universal set of barriers with the case-related barriers. The latter may be regarded as barriers generated from *the bottom-up* or barriers emerging from the processes themselves. As the case barriers were discussed in detail in Chapter 6 (Section 6.6) they will not be explained in this section but only referred to in a comparison with the universal barriers.

Universal Barriers

CRITICAL UNIVERSAL BARRIERS	
1.	**The concept itself**
2.	**Operational models and methods**
3.	**Political aspects**
4.	**Economic and business barriers**
5.	**People-related aspects**
6.	**Technological barriers**
7.	**Lack of knowledge and education**
8.	**Lack of positive visions**

Table 7a.: Key barriers to sustainable development.

1. The concept itself

The concept of sustainability of 1987 was an ideal and fairly easily understood approach to the issues at stake. It was based on the findings outlined in the Brundtland Report and advocated an intention and a goal to work for a new direction

of development as opposed to the dominant and traditional development goals coined by Harry Truman in 1949 (Section 2.5) and subsequent theories. However, both sustainability and sustainable development are theoretical constructs. To generate the required results, the constructs have to be translated into an operational and practical manual for implementation purposes. Engaging in sustainable development initiatives and achieving positive results are possible as the case study demonstrated. Achieving a global state of sustainability may, however, not be possible.

The following aspects relate to the context of sustainability and include the following:

- The sustainability definition is wide and open to interpretation. Hence the multitude of interpretations of sustainability and sustainable development mentioned in the literature review. As sustainability essentially means to endure, the concept has been misused in a variety of contexts and guises.
- The high degree of complexity involved in adopting sustainable practices is mentioned by a number of researchers as being a critical barrier to successful implementation. The concept is complex, multi-facetted and multi-dimensional as well as transformational and has thus presented implementers with a difficult and as some would postulate, an impossible challenge.
- Sustainable development is deemed to affect all areas of society. Implementation attempts have emerged from all directions and levels seemingly without coherence and direction. A criticism is as Farley and Smith (2014) point out in the title of their book: "If Sustainability is Everything is it then Nothing?" As such, it can be argued that the concept contains aspects within its essence and practical application that can be regarded as critical barriers to its own realisation.

2. Operational models and methods

Lack of universally accepted operational models and methods is a barrier that has been mentioned by researchers for many years despite endeavours to overcome it. The latest model is the 17 Sustainable Developments Goals. The SDGs were generated by the UN in an attempt to simplify the task to engage in sustainable development by breaking down the construct into 17 goals. They were designed as a guide or pathway with sub goals and indicators. However, as mentioned in Section

2.9.4, one of the main barriers to achieving them is the time frame which is now set to be 10 years (2030).

3. Political aspects

COP 25, which took place in December in Madrid 2019, resulted in some of the big nations pulling back from agreeing to meet the Sustainable Development Goals within the set time frame. Many complaints were publicised about the lack of political will and commitment including honouring the Paris Climate Agreement made in France in 2015 (UNFCCC, 2019) on climate change. Since 1987 governments have entered into numerous agreements regarding implementation of sustainable development specifically during the COPs.

The evidence points to some level of sustainability being achieved by governments passing critical laws to nudge societies into changing behaviour. However, the voluntary and non-legal aspects of the UN agreements make it possible for governments to avoid taking the necessary steps. It is evident that the main burden to push the sustainability agenda has been carried by civil society and non-governmental actors so far, and that the lack of government intervention is a significant obstacle to achieving the needed progress. The degree of legislation that has occurred has not been implemented systemically but has been limited to, it could be argued, relatively small and fragmented initiatives. To meet the sustainable development goals top-down as well as bottom-up implementation efforts must be symbiotic and work together supported by sufficient financial investment. It is in this context worth noting that the current pandemic, Covid-19, has induced governments to allocate almost unlimited funds and take radical measures to alleviate a possible economic melt-down. This stresses the fact, that critical impetus and will are crucial factors in effecting the needed change. We only seem to act immediately if our lives are at stake.

Until recently developed nations have been asked to carry the main responsibility for sustainable development and to help developing nations pay for their sustainability initiatives. The wealthy nations have and are still benefitting the most from the existing growth paradigm. This further accounts for the resistance to the above and to any effective systemic change at all.

4. Economic and business barriers

Most researchers and authors referred to in the literature review regard the current economic growth paradigm as the critical barrier to sustainability. The business sector is an integrated part of this context as it deals with the production and consumption of services and goods supported by investment and transference of wealth. The key goal of corporations is to safeguard their shareholders and generate wealth in monetary terms. Businesses have therefore found sustainable development challenging and burdensome and frequently maintained that sustainable development is complicated and too costly. However, in recent years the business sector has begun to realize, due to market pressure and public opinion, that it needs to change direction and be seen to take a real interest in social and environmental issues. The businesses that ignore this change of practice may lose their share of future markets (Willard, 2012).

Another aspect of the business issue relates to resources. Until recently natural resources were regarded as free to use and exploit without any repercussions. This is inferred in Chapter 2 documenting Kibert's (2009) three crises, where natural resources represent one of the key crisis areas (Section 2.6). This attitude still appears to prevail even though the use of resources constitutes a core element in the Brundtland definition of sustainability. As long as resources are being exploited and not regarded as part of the natural capital sustainability cannot be created. Some attempts to protect the non-renewable resource base have been employed specifically through the application of cradle-to-cradle and the circular economy models (Section 2.9.2). The progress is slow and despite good intentions the effects of such undertakings are still elusive. As in all sectors the business sector has seen many pioneering initiatives. As described in the case study Novozymes is one of the pioneering Danish corporations that has applied sustainable development models and analysis tools successfully using the Triple Bottom Line model as well as LCA applications in their product range (Section 5.5.5).

Business has in general struggled with the difficulty to systemize and standardize operations including supply chains. Effective and valid measures and monitor performances particularly with regard to social initiatives have proven difficult. As the research indicates (Gray and Milne, 2004; Kibert, 2012) measuring social impact is problematic and provides a dilemma regarding maintaining the focus on the economic bottom line. Ekins (2000) supports this arguing that some sustainability measures

relating to moral and ethical principles cannot be quantified nor can they be compared to the financial impacts of a company's operations.

A final barrier aspect to be mentioned in the business section is the power of the wealthy elite. Kirby's three crises (Kirby et al, 1995) and Naomi Klein's "This Changes Everything" (2014) hold powerful elites accountable, maintaining that they are benefitting from the unsustainable status quo to a highly destructive degree. These elites consist of powerful corporations, magnates and other influential economists and business executives, whose aim it is to intentionally resist sustainable development due to a single-minded focus on profit creation and control.

5. People-related barriers

People-related barriers to sustainability represent an essential and critical obstacle to sustainable development. First of all is the factor of population growth, predicted to increase to approximately 11 billion by the end of this century (UN, 2017). This in itself constitutes a challenge and adds a further strain on the planetary boundaries. There is a predicted increase in the middleclass segment, the consequence of which means increased consumption, resource depletion, CO_2 emissions and pollution. To overcome this barrier both strong governmental leadership as well as increased and intensified education opportunities for women and girls in particular are required. In this mix culture and traditional values play a critical role. Harvey (2019) groups a set of values, that he calls the "CIMENT mnemonic" (2019, p.35) to account for human-related resistance to change. The values are consequences of the existing growth paradigm and include competition, individualism, materialism, elitism, nationalism and technology. The values, Harvey claims, are intrinsic to the current pursuit of monetary growth. It can be argued that the continued resistance to sustainable development in the face of the overwhelming amount of research supports Harvey's argument regarding the significance of the CIMENT values (Section 2.12.3).

A number of socially orientated goals are included in the 17 Sustainable Development Goals i.e. the first five goals. What are absent from the goals are the cultural, traditional and religious aspects of peoples' lives as mentioned earlier in this research. To be operational and effective sustainable development initiatives must be adapted to fit within the many and diverse contexts that exist taking into account traditions and lifestyles within each culture (Fletcher, 2014). This is emphasized in the case studies

where the what's-in-it-for-me aspects are considered important for successful outcomes. Lifestyles vary and values vary from country to country. Denmark has, as an example, always had a tradition where celebrations and festive seasons have been associated with high consumption of meat, and the current anti-meat campaigns have challenged the population. Sustainable development will challenge and impact each culture, values and traditions, ways of thinking and lifestyles. This creates resistance and reluctance even though there is both an emotional and theoretical understanding of the issues at stake.

6. Technological barriers

Technology is frequently mentioned as the factor that can best be utilized to meet sustainability challenges. Hence it is also the lack of technological solutions that are currently regarded as the main barrier in dealing with climate change, for example in terms of reduction of CO_2 emissions. Many ideas based on technological innovations have been mentioned in this context. One Danish example is the following: in 2019 approx. 200,000 cars were sold in Denmark. Of those 7.5% were plug-in electric cars (Insideevs, 2019). When asked why the percentage was so low the representative from the automobile industry answered in the radio interview that this was due to the limited range of electric cars available as well as the complexity of battery instalments, limited lifespan and limited range of mileage – a purely technological problem and one that should be easily resolved.

The challenge to develop operational models for sustainable development rests to a great degree on technological advancement in the transportation, building and production industries. Most models and methods relating to the implementation of sustainability in general such as LCA, Cradle-to-Cradle and the Circular Economy are based on technological knowhow. The area is essential in meeting the challenges both short term and long term. The evidence from the case studies shows the importance of technology as a tool supporting a transition process.

7. Knowledge and education

An additional societal component that hinders sustainable development is the general lack of knowledge of the field. This is one of the observations made in the case studies. The cases point to education as a key element in the successes and refer to the lack of understanding and information as barriers to the processes. The language

around sustainability issues has often been jargon, not understood by the mainstream and as mentioned previously the word sustainability itself has been open to misinterpretation. As awareness of the topic has increased so has the need for knowledge and information. People are asking for information, guidance, tools and skills in order to play their part in a transition process as many feel personally responsible for the state of play.

An added perspective is the lack of education in sustainability in schools and colleges, which means that people are in the main uneducated in the topic. This situation has opened the field to the creation of myths, conspiracy theories and *fake* news. This situation at one extreme can increase the resistance to sustainability, at the other it can create a sense of desperation and aggression.

8. Lack of visions for a sustainable future

The chapter on utopianism mentions the lack of inspirational scenarios for an alternative and sustainable future (Section 3.5). The utopian communities that did get established contained within them clear ideals and positive visions for how a sustainable future might look, creating a joint inspirational platform that held and promoted the collaborative efforts. Images of positive futures are necessary to inspire people to act. Instead future dystopian scenarios have flourished. It can seem that people currently find it easier to imagine dystopian rather than utopian ideas of how the future will emerge. Recent publications support this. Books such as "Climate Wars" by Gwynne Dyer (2011), "The World Until Yesterday" by Jared Diamond (2012), "Six Degrees" by Mark Lynas (2008), "The Ends of the World" by Peter Brannen (2017) and "The Uninhabitable Earth" by David Wallace-Wells (2019) are some of the apocalyptic scenarios we are presented with. Although the books are well researched the question remains whether the fear, they instil initiates a positive and constructive action or has the opposite effect of hopelessness and inaction. It can be argued that the dystopian scenarios promoted by the entertainment industry prevents the creation of believable scenarios for a state of global sustainability.

7.3.2 Summary of barriers

Comparing the two sets of barriers in Table 7b. it is evident that there are similarities and differences between the universal (top-down) versus the case-related (bottom-up) aspects. The barriers regarded as important from the local perspective refer in

particular to the operational models in terms of lack of relevant skills and competences, financial issues seen as lack of funding, political aspects experienced as external factors and people-related aspects. More than half of the case barriers are people-related, observed as conservatism, scepticism and fixed mindsets, lack of participation, pressure to succeed, negative gossip and too much passion.
The universal elements such as complexity relating to the concept of sustainability, education and technology do not play a role in the local contexts.

Universal and case barriers

CRITICAL UNIVERSAL BARRIERS	CRITICAL CASE BARRIERS
1. **The concept itself**	1. **Conservative; scepticism; fixed mindsets**
2. **Operational models and methods**	2. **Lack of relevant skills and competences**
3. **Political aspects**	3. **External factors**
4. **Economic and business barriers**	4. **Lack of funding/financial pressure**
5. **People-related aspects**	5. **Lack of participation**
6. **Technological barriers**	6. **Pressure to succeed**
7. **Lack of knowledge and education**	7. **Negative gossip-power games**
8. **Lack of positive visions**	8. **Too much passion**

Table 7b.: Table comparing two sets of barriers, the universal and the case barriers.

The findings play an important role when creating a framework for sustainable development initiatives. As there is a need for sustainable development to occur both through a top-down universal/governmental process as well as a bottom-up people-orientated process both perspectives must be addressed. The barriers revealed in both contexts are equally important and must be overcome if a successful outcome is to be achieved.

Some of the sustainability projects mentioned in the chapter on utopianism i.e. Masdar, Dongtan and Songdo (Section 3.9) illustrate what can occur when there is

a lack of bottom-up focus, where citizens are not participating in the processes. The cities and parts of cities, beautifully designed, incorporating the latest and most advanced technology are devoid of the people they were designed for due to a singular top-down process leaving out the human aspects. Instead some of the more successful movements, such as the Transition Movement succeeded particularly due to citizen involvement. On the other hand, the effect of too little intervention by governments has resulted in the current dilemma. Governmental inaction on climate change and other environmental issues causes many initiatives to falter, for example currently with regard to achieving the 17 Sustainable Development Goals due to a lack of the necessary systemic top-down and financial support.

It is evident that work must be done to address the barrier issues. The experiences from the case studies add a valuable perspective to the discourse and point to two key aspects examined in this research, the universal or global versus the individual or local. Both aspects are critical to sustainable development and enhance the understanding of what is blocking the road as well as how to overcome the obstacles. The research indicates that attention to the universal as well as the human perspectives are key elements to be addressed.

7.4 RESEARCH QUESTION 2

RQ2: Can practical examples of implementing sustainability in society indicate ways in which a state of sustainability can be achieved?

The final part of the research findings relates to addressing RQ2. A unique element in the research is the combination of practical examples combined with sustainability and utopian perspectives. Theory is necessary in order to design new methodologies and processes. However, it is the practical examples that can validate new methods, approaches or guidelines to be followed when embarking on a process of change. The study of the three cases recorded in Chapter 5 and discussed in Chapter 6 was undertaken to address the research question of whether practical examples can show a way to achieve sustainability. The cases were chosen as practical examples of sustainable development initiatives, that had successful outcomes and could be recorded, evaluated and compared in terms of the factors employed as well as experience gained in achieving their goals.

The evidence suggests that a state of sustainability requires a global systemic change of the existing paradigm. Whether individual initiatives such as the cases can indicate ways to achieve the required transition at a macrolevel is doubtful. The research has not provided any evidence that the lessons learnt so far can achieve a state of sustainability.

It can be argued, however, that the findings do indicate ways to achieve successful outcomes from sustainable development undertakings. As such these must be pursued in order that progress happens on a wider scale. The next section will expand on the factors uncovered in the case processes.

7.4.1 Core commonalities

The narratives in Chapter 5 presented a positive perspective on how to successfully work with sustainable development initiatives. Despite the differences they all achieved positive results. The key learnings taken from the cases include the following core similarities (Table 7c.).

CORE SIMILARITIES	
1.	**Internally instigated process**
2.	**A specific impetus or significant reason for undertaking a transition process**
3.	**An inspiring vision, mission as well as clear goals and objectives**
4.	**An ethical set of values that people can relate to and feel proud of**
5.	**Strong inspirational, inclusive and competent leadership**
6.	**Similar timespan**

Table 7c.: Core similarities in the case processes.

1. Internally instigated transition processes.

The initiatives to engage in the development processes were based on intrinsic decisions. No government legislation or other external factors as such forced a change of direction in the case studies. This indicates that anyone can start a sustainability initiative. The impetus does not have to come from an external source. In fact, when groups take responsibility themselves and drive the change, they are more likely to succeed than large initiatives as the findings indicated from the utopian real-life experiments. The overall research points to the fact that individual initiatives cannot achieve sustainability on their own. The lesson, it can be argued, is that an engagement by government, civil society and the business sector can promote and drive sustainable development.

2. Specific impetus for change

Evidence from the research into the cases as well as the field of utopia suggests that a significant impetus can drive change such as the Samsø predicament, where the future of the island was at stake. If people are sufficiently motivated to pursue a cause they can create the desired change. The history of sustainability gives examples of many pioneers or pioneering groups who without having specific tools, skills or even financial support have made a positive impact on the sustainability agenda. They had a reason and motivation that outweighed the difficulties and barriers similar to the cases.

3. Clear vision, goals and objectives

Clear visions, goals and objectives are also crucial to change. They must be understood by all involved in order to facilitate participation and gain support. When goals and objectives deal with sustainability issues there is often a shared sense of purpose and meaningfulness that supports the process.

4. Similar value sets

An additional overall observation was the ethical value-base adopted by the three cases. Even if the specific values were different in each case the underlying and core principles were based on responsible and ethical behaviours. With regard to the social aspects of the processes they were intrinsic to the factors. In general, the social aspects were an integral part of the initiatives. The inference from this is the fact that sustainability is fundamentally about ethical and responsible behaviour which aligns with the Brundtland definition.

5. Strong inspirational leadership

This factor has been mentioned frequently in the case studies as a key ingredient in initiatives for change and as a key ingredient in achieving a successful outcome. The top of the list of process factors lists leadership as the cases emphasized this aspect. It is mentioned again here as a core commonality. The value of the right leadership cannot be underestimated especially when initiatives are undertaken from the bottom up and thus relies on the input and support from a group of people.

6. Time span

The final observation of the overall similarities in the cases relates to time as a factor. The time periods to reach the desired targets were comparable despite the different projects and objectives. This stresses the importance of having a realistic time frame to make a successful outcome possible and underlines the fact that change takes time. Even so, a decade is in the context of history a short period of time and from that perspective it can be argued that positive results can be generated in a relatively short time frame.

7.4.2 Core differences

As well as similarities there were core differences in the case studies that are important to point out. One relates to the varying definitions of sustainability and sustainable development. The other relates to the observation that only Novozymes used a specific model, the Triple Bottom Line and a well-known method of analysis, the LCA. The significance of this points to the discussion in Chapter 2 of the need for practical models and methods to make the constructs operational. The evidence from the case study indicates that if the impetus and motivation for change exist ways to progress the undertakings will be found.

Varying definitions of sustainability

As reported in Chapter 2 the definitions and interpretations of sustainability vary according to different contexts and environments. A number of researchers in the first literature review regarded this as a barrier to sustainable development. However, it is evident in the case studies that even if the definitions varied from case to case it did not hinder the transition initiatives. This occurrence can be related to other individual implementation attempts, for example in utopian experiments where intentional communities or other segments of society designed their own individual sets of

principles to drive the change. It can be argued that this represents a contradiction in the research findings as on the one hand a universal framework is regarded as necessary for sustainable development to occur and on the other the findings point to this not being a prerequisite for change.

The utopian perspective

Chapter 3 on utopianism points to universal aspects from the process of change whether in small or large undertakings. These include the elements above such as the importance of clear visions, goals and objectives that invite collaboration and participation. Most of the intentional utopia-orientated communities set up around the world both in the past and present were and are based on agreed principles by groups of people, who design and support the development of their communities or environments. This is also happening currently, where many, particularly the younger generation, get together to set up initiatives for communal living based on sustainability principles. Strong and clear leadership is observed in the initiatives as they are in the main instigated by a visionary who subsequently leads the experiment.

7.4.3 Key factors for a potential framework

The factors below derive from the cases studies and are based on the analysis of the processes, the lessons learnt as well as the factors that were viewed as critical to the success of the development initiatives. As the cases were diverse in nature, size, context and vision it can be argued that the factors derived from the case studies might be considered sufficiently general and thus transferable to other similar initiatives. The ten factors are described in detail in Section 6.4 in relation to the case findings. The list in Table 7d. therefore, purely outlines the factors as potential elements in a framework, and the following text discusses each of them briefly in the context of a universal and wider usage.

KEY PROCESS FACTORS

1.	**Strong leadership**
2.	**Professional and flexible approach**
3.	**Collaboration and partnerships**
4.	**Visible results and practical activities**
5.	**Educational activities**
6.	**Communication and documentation**
7.	**Personal aspects**
8.	**Research activities**
9.	**Financial internal and/or external support**
10.	**Continuing development activities**

Table 7d.: Ten key process factors.

1. Strong leadership

Leaders at all levels of the organization as well as the leading team support the initiatives. The leading team needs to be professional, competent and inspirational to be able to solidly, consistently and wisely steer the process through a (relatively) long period of change. As stressed before clear and agreed visions, goals and objectives are a prerequisite for success and essential for all involved.

2. Professional and flexible approach

It is clear from the research that the initial undertaking has to be led with a professional and/or business-orientated approach. It is equally essential to adopt a flexible approach to the process as circumstances change and challenges emerge. Initiatives must also be generated by other segments right from the start as bottom-up activities foster inclusivity and collaboration across the area of operation and promotes participation.

3. Collaboration and partnerships

Internal as well as external collaboration and partnerships support, inspire and encourage the process. As sustainable development activities will require additional outside expertise, good partnerships are essential to a constructive process.

4. Visible results and practical activities

These aspects are essential in the mix of factors. As the sustainability construct often is viewed as theoretical, diffuse or unclear the evidence of practical initiatives and visible results and examples serve to give reassurance that concrete results can be and will be achieved. As mentioned in the section on barriers concrete results promote goodwill and can help to secure funding.

5. Educational activities

Education features as a strong component in the list and can equally be seen in the barrier section as an element that can hold back progress. Few are knowledgeable in the field of sustainable development, particularly as it is an emergent process. It is therefore essential that all involved are equipped with the relevant knowledge, latest skills and tools in order to help further as well as ground the implementation initiatives.

6. Communication and documentation

The spreading and sharing of information related to the development activities are essential to keep everyone involved and informed. Lack of communication hinders the process. Openness, transparency, authenticity and inclusivity are values that underpin communication and are essential in the mix of factors. This relates to internal as well as external communications. Documentation and reporting are activities that specifically relate to the sustainability team leading the transition. They are essential both in terms of continually updating and expanding the lessons learnt as well as developing the knowledge base and creating an archival platform for future reference.

7. Personal aspects

Personal aspects play a key role in change processes as the research illustrates. Both the universal barriers as well as the case-related barriers (Section 7.3.2, Table b.) mention personal aspects as critical. The what's-in-it-for-me elements are particularly significant and cover a broad range of issues to pay attention to, such as gaining new knowledge, new tools and skills, aspects of value, purpose or meaningfulness,

philosophy and principles of the organisation, working conditions and financial gain. The inclusion of spiritual perspectives plays a major role in many intentional, sustainable communities promoting the argument that sustainability is a holistic construct and that all aspects of society and humanity are important in a transition to a state of sustainability.

8. Research initiatives

Further research should be undertaken as the process expands and concrete results emerge. Research is regarded as a logical extension to the transition work. It becomes a necessity in order to generate the most effective sustainability practices and it has the potential to attract financial support from external sources.

9. Financial support

In any development initiative funding must be in place either sourced internally or from external sources. Lack of financing has often been a key barrier to engage in sustainable development activities. The initial stages of the process are crucial in this regard as recorded in the case studies as new initiatives need financing. Funding becomes easier when results start to become visible, profits are made or aspects such as cost saving opportunities are seen to create an impact on budgets.

10. Development activities

As a change process takes time and is of an emergent nature new challenges, barriers and opportunities arise as initiatives are implemented and results start to become visible. The three cases all undertook further development projects as the work expanded internally as well as externally. New opportunities will arise in terms of new projects and collaborative partnerships in a variety of guises.

7.4.4 Summary of process factors

Each of the factors is essential to the success of the development processes. They have to be sufficiently broad to allow for interpretation that is relevant to the nature and context of each initiative. The interpretation of a set of factors or directives is as important in this specific instance as it is in in other instances such as in the model of the 17 Sustainability Goals. To work they need to be translated to fit the culture and traditions of each context. The key to success in a development process could thus be the availability of a framework of universally accepted factors, that can be translated

into practical, locally relevant and appropriate interventions. As such this framework might aid the work to meet the 17 SDGs. As such it can be argued that the research has generated a foundation for testing the transferability of a set of process factors in bigger societal contexts.

Whether implementation initiatives such as the cases can indicate ways to create a state of sustainability over time cannot be known. The positive outcomes confirm, however, that a high level of results can be generated. It can be argued that If these initiatives simultaneously were supplemented by large scale, cross-disciplinary implementation initiatives introduced by the state the likelihood of achieving the needed goals would increase. Despite the good intentions put forward by governments at the UN conferences the undertakings initiated since 1987 have so far not provided the required impacts. Taking into account the barriers outlined in the thesis such coherent and joint efforts therefore seem unlikely at the present time.

7.5 FURTHER RESEARCH

The research points to further investigations. Three areas in particular have become plausible for further research.

- *Research into the nature of a new paradigm:*

The first area for further investigation would cover research into the nature of a new paradigm based on the Brundtland definition with reference to utopian theories. The investigation would focus on fulfilling the basic needs of humanity within the carrying capacity of the planet, replacing the existing political and economic paradigm, taking the long view. As described in Section 6.8 this research would be extensive and encompass both an evaluation of what has been achieved since 1987, a development of a new theory of sustainability based on the practical experiences gained and extrapolated into the future. It would include resilience measurements as well as a clear plan of action.

- *Research into further successful sustainable development initiatives:*

A second research undertaking could encompass a parallel focus to the above related to achieving more within the current system by increasing development initiatives to progress the sustainability agenda. Sustainable development is the only recommended

plan available at the present time. It can therefore be argued that based on the positive results from the case study much more should and could be done to further sustainable development. More research based on this thesis could explore a variety of other successful examples of sustainability initiatives build on the process framework and make it operational and usable in a wider context.

A pertinent example: the Danish Government is currently asking many actors for help in developing initiatives to instigate a *green* transition in the wake of the Covid-19 pandemic. New ideas are being generated by industry, NGOs and other organisations, advocating their ideas for policy and legislation intervention (Klima-, Energi- og Forsyningsministeriet, 2020). Many of these actors are advocating hands-on and locally anchored processes and initiatives based on past experiences and successes. The perspectives are crucial for furthering the sustainability agenda and prepare people for more radical interventions. Positive ideas and visions as well as practical, real life results are important motivators as the chapter on utopia confirmed.

- *Exploration of the barriers to sustainability:*

The third area for further research could be a closer investigation of the barriers to sustainability. The list of barriers recorded in the thesis was not exhaustive. The importance of the work to define the problems in order to overcome them cannot be underestimated. Such research might unveil clues as to how to change from one paradigm to another and help to pinpoint where exactly the key to this transition could be found and effected. The field could be explored in greater detail based both on the obstacles and barriers revealed in case studies as well as on the perceived, theoretical difficulties uncovered in the literature reviews. Equally important would be the recommendations and solutions regarding overcoming the barriers.

The above has pinpointed a number of areas for further research. Sustainability is a difficult and complicated construct to investigate as the thesis clearly shows. No one has as yet managed to create a tried and tested universal way or method to enact the concept and realise the ideals.

7.6 CONTRIBUTION TO KNOWLEDGE

The research addressed the field of sustainability from different perspectives. The research design diagram Fig. 7.1 (Section 7.1.2) pinpoints the areas where new knowledge is generated including an exploration of the concept, barriers to its realisation and an exploration of the field of utopia and its relevance to sustainability. Additionally, an investigation into real life initiatives was carried out resulting in a constellation of process factors for a framework for further use. The synthesis between the field of sustainability, utopianism and the case studies created a knowledge platform with which to address the research questions. This is the first original contribution to research of this project in sustainability issues. It draws on experiences from diverse fields, adds new dimensions to the construct of sustainability, points to the importance of barriers and ways to overcome them and suggests ways to achieve progress through key common transition factors. The perspectives inform each other. As such the research opens up new aspects and insights into sustainability, that may contribute to research in the field. The research design reflects the multidisciplinary aspects of sustainability.

Sustainability and sustainable development

The research specifically revealed a clear difference between the nature of sustainability and sustainable development in terms of implementation and achievement. The research suggests that the current sustainable development initiatives are not sufficient for global sustainability to be achieved, due to the inherent barriers found in the existing political and economic system and structures. To achieve sustainability a radical and profound shift of a utopian nature needs to take place.
A new paradigm must replace the existing one through a worldwide cross disciplinary and systemic change.

Concurrently, the research suggests, based on the findings from the case study, that sustainable development initiatives can create positive results within the current system. The three individual undertakings did achieve their goals without governmental interference or outside pressure. The people, motivated by their vision, mission and purpose worked persistently towards their goals, and achieved them. This indicates that activities undertaken by a variety of actors can progress the sustainability agenda. The importance of these findings from the case study cannot be underestimated. In

particular the degree to what is possible when a group of people create a joint driving and motivation force for change. It is from the case study that some optimism regarding the capability of humanity to deal with the challenges occurs. The psychological and spiritual transformative power that can be generated by human beings has often been neglected in the sustainability discourse. It is rarely addressed in the existing research and literature. The case narratives therefore contribute new perspectives and new knowledge on human motivation and drive. Samsø as a community focussed undertaking, Brahma Kumaris as a spirituality focussed undertaking and Novozymes, as a business focussed undertaking.

In the context of the cases the suggested framework of the success factors is an addition to new knowledge. It forms a new set of tools based on experience that can aid the drive towards sustainable development. The findings point to an outline of a framework for successful processes that may be utilized by other actors. The different components are practice orientated and their relevance is explained. The lessons learnt from the three cases emphasize the importance of the key critical elements and reiterate that change is dynamic, emergent and non-linear. This suggests that there are ways to progress the sustainability agenda through individual undertakings by civil society within the existing societal system.

Barriers to sustainability

The research uncovered a wide range of factors that hinder the sustainable development progress. The case study and the literature reviews revealed a number of critical barriers. These need to be acknowledged, investigated and understood. Kibert et al (2012) points to the complexity of sustainability, Klein (2014) claims it is a powerful elite, Harvey (2019) lists the CIMENT values. The cases revealed more local, community and personal issues. Each perspective fits into the bigger context, that has to be addressed. A significant contribution to knowledge is therefore the focus on and the importance of the barriers as an essential topic to be addressed for sustainability to happen, whether furthering sustainable development initiatives or assessing the challenges to transform the current system. The argument is particularly relevant in relation to the UN model of the 17 Sustainable Development Goals. Meeting the goals by 2030 or even 2050 will not be possible unless the barrier issues are addressed. In particular barriers such as the lack of coherent governmental intervention as well as broader issues such as culture and tradition, equality and education. The barriers

documented in the research are important as they collectively explain why sustainability is not happening.

The utopian perspective

The sustainability versus utopia discussion is similarly relevant, specifically in the paradigm discourse as it opens the doors to a deeper and different dimension and interpretation of sustainability. The idea of sustainability as a utopian construct is supported by the findings in the literature reviews and contributes an additional perspective to its perceived nature as it differentiates sustainable development and sustainability. The utopian perspective highlights the essence of creating a new paradigm, why it happens and what it means.

7.7 CONCLUDING REMARKS

The research set out to explore the sentence above and the many aspects and perspectives that emerged during the investigation. The evidence indicates that the ideal to change the world from being unsustainable to becoming sustainable requires a paradigm shift, balancing the economic, environmental and social factors in order for humanity to live and work within the carrying capacity of the natural habitat. To realise it involves dismantling the existing monetary growth trajectory and replacing it with a new system focused on planetary as well as human wellbeing.

If the logical and conscious next step of human evolution is to achieve sustainability by choice, and the process of change is supported, focussed and incremental, it may be achieved. Two key factors must be present for this to occur: sufficient time and the will to do it. Governments, business and civil society will have to conduct a step-by-step transition in a synchronized partnership (top-down and bottom-up). This will include national and global systemic interventions shifting the main focus from growth in monetary terms to growth in well-being in a sustainability context. The practical, utopian as well as case experiments demonstrate that change can be enacted by breaking down the whole into smaller operations. Smaller units seem to have succeeded where larger entities have failed. In this context one of the most recent mainstream suggestions for radical change has been proposed by the Mayor of Paris, Anne Hidalgo (Willsher, 2020). The project is called the "15-minute city" ("Ville du quart d'heure"), where she proposes to create a number of self-sufficient communities within

the different regions of the city. The idea would be to cover the citizens' basic requirements within a 15-minute reach i.e.: health, education, shopping, cafes, parks, sports etc. The claim is that this "ecological transformation" will reduce pollution and stress, promote local trade and infrastructure and improve the well-being of the residents. The concept was initially developed by Sorbonne Professor Carlos Moreno. Ernst Callenbach (1975, 2009) introduced the small unit idea in his book "Ecotopia" where he suggested a similar model (Section 3.8.3). However, as the research proposes, sustainability cannot be achieved unless there is an updated overall vision and plan for its realisation.

The fundamental question remains whether sustainability is possible? The answer must be that sustainability is possible, but it is not attainable in the current political and economic environment. Implementing sustainable development at the current level will also not bring about the required impact in time to alleviate climate change, the most urgent need. Profound change is necessary but the barriers hindering the process are many and very powerful. A universal or overall mainstream vision for a state of sustainability is also not available. It is difficult for most people to envision what a state of sustainability would entail even if there are many models, methods and technological solutions. Many positive initiatives exist that work for the people involved. However, if the intent is a global state of sustainability the needed changes require both a new and updated theoretical construct and development plan that is operational followed by a coherent worldwide implementation effort.

To what extent will the research results impact my work?

This research project has had a profound effect on my thinking and understanding. A metaphor could be that the research has given me a pair of bifocal glasses for short- as well as long-distance viewing that has caused the unclear edges and grey areas around sustainability to become sharper. I have worked with sustainability in an emergent process where the key issues have shifted from time to time according to the prevailing contexts. My intuition warned me previously of what this research has now revealed. In particular the magnitude and nature of barriers to be overcome. The research has also confirmed my belief in people's ability to make things happen through the motivating power of a joint, clear vision.

From a more practical viewpoint the research has provided me with new tools. The critical process factors have revealed what can occur if such factors are utilised. I have reflected on what might have transpired had I used the set of factors in my past work. Firstly, in developing the ICIS Centre, secondly to make the required changes at Schumacher College in Devon and finally to ensure a successful and ongoing existence for the latest undertaking, Chora Connection, in Copenhagen, due to which this research has taken this long. I employed many of the factors but not all, and each one is crucial if positive goals and objectives are to be achieved.

The research will form the basis for my future work in publishing, researching, lecturing, teaching and consulting.

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LIST OF ABBREVIATIONS

APEC: Asia-Pacific Economic Cooperation

BK: Brahma Kumaris

CG: Corporate Governance

COP: Conference of the Parties

CSD: Commission on Sustainable Development

CSR: Corporate Social Responsibility

C2C: Cradle-to-Cradle

DAVOS: Name of Alpine town in Switzerland

DIIS: Department of Industry, Science, Energy and Resources

DPI: Department of Public Information

DSP: Dominant Social Paradigm

ECOSOC: United Nations Economic and Social Council

EEA: European Environmental Agency

EEE: Environment, Ethics, Economics

ERP: Education for Rural People

EU: European Union

FAO: Food and Agricultural Organisation

GDI: Gender-related Development Index

GDP: Gross Domestic Product

GHG: Greenhouse gas

GNH: Gross National Happiness

GNHI: Gross National Happiness Index

GNP: Gross National Product

GPI: Genuine Progress Indicator

HDI: Human Development Index

HPI: Happy Planet Index

ICIS: International Centre for Creativity, Innovation and Sustainability

IIED: International Institute for Environment and Development

IPCC: Intergovernmental Panel on Climate Change

ISO: International Organisation for Standardization

ISO14040/44: Set of principles and framework for life cycle assessment

IT: Information technology

IUCN: International Union for Conservation of Nature

LCA: Life-Cycle Analysis or Assessment

NASDAQ: American Stock Exchange

NGO: Non-Governmental Organisation

NRTEE: National Round Table on the Environment and Economy:

OECD: Organisation for Economic Co-operation and Development

PPP: People, Planet, Profit

PR: Public Relations

SEA: Samsø Energy Academy

SD: Sustainable Development

SDGs: Sustainable Development Goals

SME: Small and Medium Enterprises

SPI: Social Progress Index

TBL: Triple Bottom Line

TEF: The Ecological Footprint

TES: The Environmental Space

TNS: The Natural Step

UN: United Nations

UNDP: United Nations Development Program

UNEP-SPD: United Nations Environment Program for Sustainable Product Design

UNFCC: United Nations Framework Convention on Climate Change

UNHCR: United Nations High Commissioner for Refugees

UNICEF: United Nations Children's Fund

WBCSD: World Business Council for Sustainable Development

WCS: Wildlife Conservation Society

WEC: World Economic Forum

WWF: World Wildlife Fund