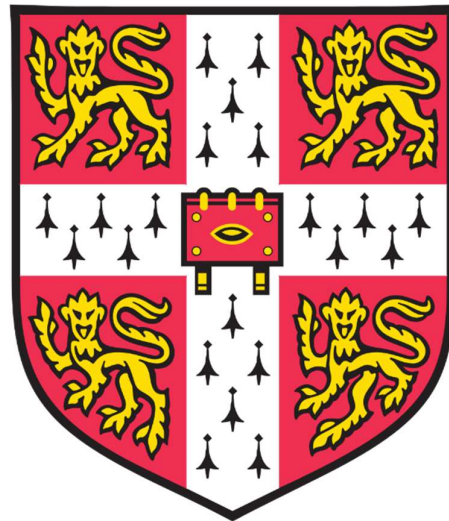


**Promoting Sustainability in Africa's Small Industries:
An Exploratory Study of Intermediary Performance Drivers**



Olamide Oluwaseyi Oguntoye

University of Cambridge

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Doctor of Philosophy

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Declaration

This dissertation is the result of my own work and includes nothing which is the outcome of work done in collaboration except as declared in the Preface and specified in the text.

It is not substantially the same as any that I have submitted, or, is being concurrently submitted for a degree or diploma or other qualification at the University of Cambridge or any other University or similar institution except as declared in the Preface and specified in the text. I further state that no substantial part of my dissertation has already been submitted, or, is being concurrently submitted for any such degree, diploma or other qualification at the University of Cambridge or any other University or similar institution except as declared in the Preface and specified in the text

It does not exceed the prescribed word limit for the relevant Degree Committee.

Promoting Sustainability in Africa's Small Industries: An Exploratory Study of Intermediary Performance Drivers

Author: Olamide O. Oguntoye

Abstract

Many advanced countries have increasingly sought to promote sustainability in the small-scale industries of developing countries. Available evidence however, suggests sustainability promotion programmes may be yielding only limited success. In this study, performance drivers of the intermediaries delivering the programmes is explored.

Research methodology adopts a multiple case-study of National Cleaner Production Centres (NCPCs) across four countries in Africa. Data collection involved semi-structured expert interviews with 51 experts across all four countries. This was combined with 29 weeks of field visits between the countries. Extensive desk research on the NCPCs and their national contexts was also performed to provide additional relevant data. The study applies the inductive grounded-theory approach in analysing data and identifying performance drivers.

Key findings are (1) that there are eighteen determinants of intermediary performance ten of which may be considered key, (2) that performance determinants as construed by intermediaries are distinct from factors traditionally known to drive sustainability among small industries, (3) that a relationship may exist between the national context of the intermediary and its performance, (4) that there may be an opportunity to tailor existing frameworks on organizational performance to better suit intermediaries and (5) that a more critical approach to intermediary performance among key stakeholders may help unlock greater impact of sustainability programmes.

Theoretical contributions are (1) creation of an expanded view of factors known to drive sustainability among small industries (2) a set of hypotheses between intermediary performance and international environmental programme impact, national contexts, public organizational performance frameworks, and sustainability adoption in small industries and (3) the development of a new conceptual framework to guide further study and dialogue on intermediary performance.

Novelty of this study spans four points: (1) Previous studies on small industries and sustainability have focused mainly on the small industries, i.e. the recipient of sustainability support programmes. This is one of the first to focus on the intermediary. (2) Previous studies have focused mainly on developed countries such as the UK. This is one of the first to address the developing country context. (3) Previous studies on sustainability promotion in small industries have adopted a programme-based framework. This is one of the first to adopt an organizational performance based framework. (4) No previous studies known to the researcher have explored the possibility for synergies between intermediaries and the emerging community of social enterprises in developing countries within the context of sustainability support programme delivery

The key limitation of this study lies in the fact that it seeks to address the question on intermediary performance using data almost exclusively from the intermediaries. This limitation provides an opportunity to conduct further research on the topic using data from a wider array of stakeholders. Methodological limitations such as the use of a qualitative approach, the use of the case study method, and the use of a grounded theory technique are acknowledged. However, these limitations are considered preferable to those of the alternatives. Standard reliability measures including triangulation and member-checking have been adopted to mitigate methodological limitations.

Future research may explore the performance determinants of the intermediary from the lenses of a broader selection of stakeholders including donors, and the recipient small industries. This could help improve the reliability of current

findings. The role and process of organizational learning in intermediaries; and the relationship between organizational learning and performance, are additional research areas that could augment the contribution of the current study. Insights from such research may help unlock step improvements in the future design and delivery of sustainability programmes to small industries in developing countries.

Related Publications and Presentations

- Oguntoye, O. & Evans, S. (2017). Framing Manufacturing Development in Africa and the Influence of Industrial Sustainability. *Procedia Manufacturing*. 8, 75-80.
 - Oguntoye, O., Geissdoerfer, M., Nuwarinda, H. & Evans, S. (2019). Facilitating industrial symbiosis programmes in developing countries: reflections from Gauteng, South Africa. *Development in Practice*. 29(1), 115-121.
 - Quartey, S. & Oguntoye, O. (2018). Promoting Industrial Sustainability in Africa through the Triple Helix Approach: A Conceptual Framework. Submitted to *Journal of the Knowledge Economy*.
 - Oguntoye, O. & Quartey, S. (2018). Small businesses and environmental support programmes: A meta-analysis of key literature. Submitted to *International Journal of Sustainable Development*.
 - Oguntoye, O. & Quartey, S. (2018). Intermediaries and the Promotion of Corporate Sustainability among SMEs in Africa: A Multi-Country Expert Study. Submitted to *Business and Sustainable Development*.
 - Oguntoye, O. (2016). *Towards Sustainable Consumption: A Framework for Assessing Supplier's Commitment*. [Presentation] The European Conference on Sustainability, Energy and the Environment, Brighton, 7th July.
 - Oguntoye, O. & Evans, S. (2017). *Capacity Development Programs on Sustainability for SMEs*. [Presentation] The 7th International Conference on Business Sustainability, Porto, 15th November.
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Abbreviations

ADB – Asian Development Bank
AfDB – African Development Bank
AGOA – African Growth and Opportunity Act
ARSCP – African Roundtable on Sustainable Consumption and Production
ATB – getting from A to B
BAU – Business-as-usual
CO₂ – Carbon Dioxide
COMESA – Common Market for Eastern and Southern Africa
CSIR – Council for Scientific and Industrial Research
DWRM – Directorate of Water Resources Management
EAC – East African Community
EFQM – European Foundation for Quality Management
EMS – Environmental Management System
EP₃ – Environment Pollution Prevention Project
EPA – Environmental Protection Agency
EPZ – Export Processing Zone
EU – European Union
FBT – Food, Beverage and Tobacco
FDI – Foreign Direct Investment
GDC – Geothermal Development Commission
GDP – Gross Domestic Product
GHG – Greenhouse Gas
GNCPC – Ghana National Cleaner Production Centre
GT – Grounded Theory
HDI – Human Development Index
ICF – International Climate Finance
IPAP – Industrial Policy Action Plan
ISIC – International System of Classification of all economic activities
ISO – International Standards Organization
KC – Key Challenge
KCIC – Kenya Climate Innovation Centre

KEPSA – Kenya Private Sector Alliance
KIRIDI – Kenya Industrial Research Development Institute
KNPCPC – Kenya National Cleaner Production Centre
KTO – Key Trends and Opportunities
LCA – Life-Cycle Analysis
NCPC – National Cleaner Production Centre
NCPC-SA – National Cleaner Production Centre of South Africa
NEMA – National Environmental Management Authority
NETFund – National Environmental Trust Fund
NGO – Non-Governmental Organization
NIST – National Institute for Standards and Technology
OE – Organizational Excellence
MESTI – Ministry of Science Technology and Innovation
MoA – Memorandum of Agreement
MoU – Memorandum of Understanding
MtCO_{2e} – Million tonnes of Carbon dioxide equivalent
MoU – Memorandum of Understanding
MTIC – Ministry of Trade Industry and Cooperatives
MVA – Manufacturing Value Added
ODA – Official Development Assistance
OECD – Organization for Economic Cooperation and Development
PART – Programme Analysis and Reporting Tool
PEESIS – Programme constraints, Engagement strategy, External profile, Service networks, Impact strategy and SME context
PMG – Programa de Mejoramiento de la Gestion
RECP – Resource Efficiency and Cleaner Production
RECP*net* – Resource Efficiency and Cleaner Production Network
REPIC – Renewable Energy and Energy Efficiency Promotion in International Cooperation
RQ – Research Question
SAG – Switch Africa Green
SDG – Sustainable Development Goals
SIC – Standard Industrial Classification
SME – Small and Medium Enterprises

SOI – Sustainability-Oriented Innovation
TQM – Total Quality Management
UCPC – Uganda Cleaner Production Centre
UIRI – Uganda Industrial Research Institute
UNDESA – United Nations Department of Economic and Social Affairs
UNFCCC – United Nations Framework Convention on Climate Change
UNECA – United Nations Economic Commission for Africa
UNDP – United Nations Environment Programme
UNEP – United Nations Environment Programme
UNIDO – United Nations Industrial Development Organization
USAID – United States Agency for International Development
USC – University of Southern California
USSIA – Uganda Small Scale Industries Association
WDW – What Doesn't Work
WW – What Works
WWII – World War II

1.1 SMEs and Sustainability

Promoting the widespread adoption of sustainability tools and practices among SMEs in the manufacturing industry has remained a major policy concern over the past two decades. SMEs constitute a formidable economic sector making up 80% of all industries in Europe and the United States. Ninety-nine percent of UK businesses are SMEs, while in Australia this figure is 99.7% (Revell & Blackburn, 2007; Parker et al, 2009). SMEs and the informal sector represent over 90% of businesses and contribute to over 50% of GDP in Africa, while accounting for about 63% of employment in low income countries (UNECA, 2005). The manufacturing sector, which is considered a key job provider in any economy, is also significantly driven by SMEs (Ayyagari et al, 2007).

With respect to their environmental impact, SMEs account for 70% of global pollution (Hillary, 2000; Revell et al, 2010; Stokes et al, 2007) and 60% of total carbon dioxide emission (Revell & Blackburn, 2007). In the European Union, SMEs contribute 64% of overall environmental impact, while about a third of UK SMEs' energy spend is wasted through inefficient practices (Blundel et al, 2013). SMEs' significant contribution to the economy and the environment has led to increased efforts by stakeholders including policymakers and researchers to explore improved approaches to promoting sustainability in the sector. As governments around the world commit to ambitious carbon reduction targets, the need to address sustainability in the SME sector becomes even more paramount.

Despite growing efforts to promote sustainability in the SME sector, evidence however suggests success has been limited (Friedman & Miles, 2002; Hillary, 2004). Researchers have found key reasons for the low sustainability adoption to include lack of awareness; shortage of skills, finance, time & information; as well as the erroneous belief among SME owner-managers that sustainability issues mainly pertain to larger companies (Bradford and Fraser, 2008; Brammer et al, 2012; Drake et al, 2004;

Hillary, 2000; Parker et al, 2009; Pimenova and van der Vorst, 2004; Revell & Blackburn, 2007). SMEs are also generally more difficult to regulate than larger enterprises (Hillary, 2000). From traditional command-and-control measures to support measures, various policy interventions have been applied to ensure SMEs adopt sustainable practices. However, evidence on the effectiveness of these measures are often mixed prompting further research on the SME and sustainability subject (Friedman & Miles, 2002; Parker et al, 2009). Till date the big question on how to improve uptake of sustainability among SMEs remains persistent.

1.2 Research till Date

Researchers have continued to advance understanding of how to promote the uptake of sustainability among SMEs. Beginning with seminal publications such as *Small and medium-sized enterprises and the environment: business imperatives* [Hillary (ed.), 2000], research in this field has matured to a state where a few systematic reviews have emerged (e.g. Parker et al, 2009; Klewitz & Hansen, 2014). In summary, studies on SME and sustainability have adopted two key lenses:

- Policy-oriented
- Firm-oriented

For studies adopting the policy-oriented lens, a key goal has been to address the central question: what policies, under what conditions help to promote sustainability among SMEs? As with most policy areas, there are often a variety of tools and instruments that could be applied. Regulations were the dominant method to induce sustainability in SMEs, however, they often led to mere adoption of compliance-based *end-of-pipe* or *pollute-first-treat-later* solutions among the SMEs – (Hillary, 2000; Khanna, 2001). Other approaches including financial incentives, audit schemes, training, and voluntary agreements have been applied. However, the effectiveness evaluation of each method has often remained mixed. Most studies focusing on policy agree that a mixed-policy strategy targeted at specific SME segments is necessary to overcome the limitations of each instrument (Battaglia et al, 2010; Bradford & Fraser, 2008; Blundel et al, 2013; Fernández-Viñe et al, 2013; Kotchen, 2013; Parker et al, 2009; Taylor et al, 2012). The current challenge is to understand how to best design the mix, and how to implement them effectively.

Studies adopting the firm-oriented lens have attempted to address the broad question: under what conditions does a small firm adopt sustainability tools and practices? Some studies in this category have examined the applicability of sustainability tools and methodologies such as cleaner production, LCA, eco-innovation and sustainability reporting in SMEs (Granly & Welo, 2014; Jenkins, 2004; Johnson & Schaltegger, 2016). Some have examined levels of adoption in specific regions or sectors, together with what barriers and drivers (Battisti, M., & Perry, 2011; Bos-Brouwers, 2010; Hillary, 2004; Kjaerheim, 2005; Paquin & Howard-Grenville, 2009; van Berkel, 2007). Recently, some studies have tried to understand how the more sustainability-advanced SMEs have approached knowledge acquisition, and what role their networks played in the process (Halila, 2007; Johnson, 2017; Klewitz, 2017). Studies taking the firm-oriented lens have applied a broad range of methods – case studies, surveys, and quantitative models – to address the question of how SMEs adopt sustainability.

An important overlap exists between the two identified lenses – *intermediaries*. Intermediaries here refer to organizations such as universities, trade associations, chambers of commerce, innovation centres, non-profits, and independent consultants. They are sometimes called service providers, although the term intermediary would be maintained throughout this thesis. Intermediaries are often responsible for delivering sustainability support services such as advisory support, in-plant demonstration, training, networking and capacity development programmes to SMEs. In the UK, well-known intermediaries offering sustainability support to SMEs are the *Carbon Trust* and *Business Link* organizations.

The extent to which intermediaries have been researched can be described using the two prominent research lenses already identified. Studies adopting the policy lens (e.g. Bianchi & Noci, 1998; Phillips et al, 2006; Roberts et al, 2006), often recognize intermediaries as active members of the sustainability policy networks. In reporting the outcome of support programmes, studies in this group often mention which intermediaries delivered the support service along with details of programme outcome (e.g. Char-lee et al, 2016; Luken et al, 2016; Meath et al, 2016; Phillips et al, 2006). In the firm-oriented literature, intermediaries are recognized as sources of knowledge which the small firms or SMEs use when embarking on sustainability-based projects (e.g. Collins et al, 2007; Halila, 2007; Klewitz, 2017; Klewitz et al, 2012; von Malmborg, 2007). With allusions being made to them from both the policy- and firm-

oriented strands of literature, intermediaries are becoming increasingly important in the research on SME and sustainability.

1.3 Knowledge Gap

Despite being a critical link in the delivery of sustainability support services to SMEs, intermediaries have only received limited research attention so far (Friedman & Miles, 2002; Klewitz et al, 2012; Hansen & Klewitz., 2012; Parker et al, 2009; Revell & Rutherford 2003; Roberts et al, 2006). The literature shows there is an emerging body of exploratory studies which recognize the importance of intermediaries. Studies such as Bianchi et al (1999), Hansen & Klewitz (2012), Klewitz et al (2012), and Pimenova et al (2004) are good examples. They have attempted to provide a conceptual view of roles played by intermediaries in promoting sustainability among SMEs. Klewitz et al (2012) for example, in their study of a sustainability support programme for German SMEs, delineated nine specific roles played by intermediaries. However, while these emerging studies have laid a useful foundation, there are yet a number of critical questions about intermediaries which remain unaddressed.

The need to further research intermediaries can be debated from two extremes. First is that intermediaries are completely inconsequential, hence they do not warrant further research consideration. This perspective can be challenged using theories of public service delivery and organizational effectiveness. From these theories, intermediaries sometimes underperform, thus leading to the possibility that they are partly responsible for the low-state of SME sustainability adoption. Empirical research evidence also suggest that this extreme view is invalid (Friedman & Miles; Roberts et al, 2006).

The second extreme is to consider the study of intermediaries as the sole source of insights on how to advance sustainability among SMEs. This excessively optimistic view is also inaccurate as research has shown that a range of factors including SME management's disposition, available resources, existing regulatory framework and the market are critical drivers of SME sustainability adoption (Hillary, 2004; Parker et al, 2009). An accurate justification for studying intermediaries lies in-between those two extremes. The exact extent to which intermediaries affect SMEs' uptake of sustainability is yet to be determined. However, the present contention is that

knowledge gaps still exist in the conceptual understanding of intermediaries within the SME sustainability context.

In developing countries, the knowledge gap on intermediaries is further pronounced by the fact that developing countries are an under-researched aspect of the study of SME and sustainability (Parker et al 2009, Blackman, 2010 and Lund-Thomsen, 2016). This significantly undermines the growing international efforts to promote sustainable industrial development in developing countries. In the UK, where international development funding relating to environment rose from about £100m (~US\$130m) in 2005-6 to £360m (~US\$468m) in 2009-10, gaining better insights on intermediaries could help improve value for money.

By 2011, the UK government had launched a more comprehensive channel for managing its environmental investments in developing countries – the International Climate Finance (IFC). IFC is an investment of £3.87b (~US\$5b) between 2011 and 2016 £5.8b (~US\$7.5b) between 2016 and 2021 (Gov.uk, 2018). Similar investments to developing countries are made by a number of other governments including Sweden, Norway, Austria, Switzerland, and Germany. Although not all environment-related funds provided to developing countries are budgeted for sustainability support programmes for SMEs, these SME programmes remain top priority. It is therefore critical to address the knowledge gap on intermediaries in developing countries as this may unlock step changes in the effectiveness of the growing international investments.

1.4 Research Question

The aim of this study is to address the question:

What are the key drivers of the intermediary's performance in the delivery of sustainability support programmes to SMEs in developing countries?

In examining the concept of intermediary performance, a number of additional questions would be explored:

- *How do drivers of intermediary performance compare with factors known to influence the uptake of sustainability by SMEs?*
- *How do contextual differences between countries influence performance of an intermediary?*

- *What (if any) is the relationship between existing frameworks on public organizational performance and intermediary performance?*
- *How are the international environmental programmes aimed at promoting sustainability among developing countries' SMEs influenced by the intermediary's performance?*

Although a wider variety of research questions on intermediaries may be posed, the current ones have been selected for two key reasons:

- I. They represent an area for which relevant data is likely to be available (i.e. they are researchable)
- II. They align with and potentially add to the current direction of research on intermediaries

1.5 Scope

Definitions of key terms of the research question would be explored in Chapter 2. However, it is important to give a high-level summary of what is included in this study and what is not.

SMEs:

Perception of what constitutes an SME varies from country to country. Some studies also draw a distinction between SMEs and micro-enterprises. Such distinctions are important. However, the current study considers SMEs in a broad sense, i.e. enterprises which are distinct from larger enterprises, and which are the target of publicly-funded business support programmes. A simple but widely adopted view of the SME based on the European Union definition, is applied in this study: “enterprises which employ fewer than 250 persons and which have an annual turnover not exceeding EUR 50 million, and/or an annual balance sheet total not exceeding EUR 43 million” (European Commission, 2019). Further details on the conceptual view of SMEs in this study are provided in the literature review chapter.

Small Industries:

The term “small industries” as found in the title of this thesis is sometimes used throughout the thesis as a shorthand for “SMEs in the manufacturing sector” or “SME manufacturers”. An extensive examination of differences between SMEs in various sectors or countries (i.e. manufacturing versus services sector, developed versus developing countries) is not the key focus of this study, although comments on possible influence of such differences on the findings of this study, are provided where applicable. The manufacturing sector is chosen for its relatively high contribution to local environmental impact.

Manufacturing Sector:

The view of manufacturing sector adopted in this study is based on International Standard Industrial Classification of all economic activities (ISIC) which is maintained by the United Nations Statistics Division. This is the most widely used system. The latest version of the classification (Revision 4) splits the manufacturing sector into 24 divisions (i.e. 10 to 33 under section C). Divisions are further split into groups, classes and subclasses (United Nations, 2008). The full list of manufacturing divisions is given in Appendix B Table I.

ISIC data for countries investigated in this study are limited in that they are either based on an older system – Revision 3 or have not been recently updated and/or are incomplete. The most up-to-date ISIC data from UNIDO (2018) is summarized in Appendix B Table II for all countries engaged. This study investigates intermediaries irrespective of the manufacturing division their clients (SMEs) belong. This agnostic view of manufacturing divisions is preferred given that the focus of the research is primarily on intermediaries, not the SMEs. However, where specific insights relating to a given manufacturing division arises, they are discussed fully.

Support Programmes:

Sustainability support programmes are a core focus of this study. These may be described as publicly-sponsored enterprise support programmes with the aim of improving sustainability performance of the SME (as seen in Hillary, 2000; Parker, 2009; Utting, 2002). Sustainability support programmes may be distinguished from other kinds of public support programmes, e.g. export-

promotion programmes, growth and expansion programmes which seek to promote other areas of the enterprise performance for the sake of national economic interest.

In this study information-based support programmes are the key focus. This includes programmes providing SMEs with services such as business advisory/consultancy, technology demonstration exercises, awareness-raising workshops or training, for the sake of improved environmental performance. Sustainability support programmes may or may not include transfer of clean-technology and/or financial assistance (Hillary, 2000; Parker, 2009). However, the information component is a key defining feature for the programmes considered in this study. Further description and justification are provided in the literature review chapter.

Currencies:

Sums of money are specified in this thesis using the same currency as the original information source. This ensures the accuracy of the cited information is preserved. Conversion to other currency is not performed unless where deemed absolutely necessary. In such instances, the exchange rate applied in the conversion is indicated.

1.6 Audience

To whom is this dissertation relevant?

- First are the researchers studying sustainability in the SME sector
- Second are stakeholders providing support programmes relating to sustainability for SMEs in developing countries. This includes the local governments, the intermediaries, international donors, other funding institutions, and the SMEs
- Third are researchers in adjacent fields: organizational performance, international development, and public administration

1.7 Dissertation Structure

Chapter	Questions Addressed
2. Literature review	<ul style="list-style-type: none"> • What approach is adopted in conducting the literature review? • What is the existing conceptual view of SMEs in the context of sustainability? • What is the existing view of international programmes promoting sustainability in small industries of developing countries? • Who are intermediaries and what are their roles in the delivery of sustainability support programmes to SMEs in developing countries? • What existing theoretical frameworks are relevant in the study of intermediaries? • What are the limitations in existing literature and what is the key research gap?
3. Methodology	<ul style="list-style-type: none"> • What research paradigm would be used in addressing the research question? • What research design would be adopted and what is the justification? • How would the research design be operationalized in terms of data collection, analysis, and synthesis? • What are the methodological strengths and limitations?
4. Case Background	<ul style="list-style-type: none"> • What is the background of the chosen case studies? • What key characteristics of the case study may be relevant in addressing the current research questions?
5. Data Collection	<ul style="list-style-type: none"> • What are the sources used in gathering data for this study? • What procedures were taken, and how were methodological standards applied?
6. Analysis	<ul style="list-style-type: none"> • How is data represented, sorted and/or organized towards addressing the research questions?

	<ul style="list-style-type: none"> • How are validity requirements of the chosen research methodology met?
7. Discussion	<ul style="list-style-type: none"> • Based on the newly analysed data, <ul style="list-style-type: none"> ○ What are the key drivers of the intermediary's performance in the delivery of sustainability support programmes to SMEs in developing countries? ○ How do drivers of intermediary performance compare with factors known to influence the uptake of sustainability by SMEs? ○ How do contextual differences between countries influence performance of an intermediary? ○ What (if any) is the relationship between existing frameworks on public organizational performance and intermediary performance? ○ How are the international environmental programmes aimed at promoting sustainability among developing countries' SMEs influenced by the intermediary's performance?
8. Conclusion	<ul style="list-style-type: none"> • What is the contribution to knowledge of this study? • What are the implications of the research findings? • What are the limitations and recommendations for future research?

Table 1.1: Questions addressed in chapters of the dissertation

1.8 Key Learning

- Promoting the adoption of industrial sustainability practices among SME manufacturers is gaining importance in practice and research
- A knowledge gap exists in the study of intermediaries who facilitate sustainability promotion programmes in developing countries
- A research question on performance drivers of intermediaries to be investigated in this study along with four additional exploratory questions

2

Literature Review

This chapter explores the literature with the aim of establishing whether and/or to what extent the research question has been addressed. Following a brief description of the review method, the rest of the chapter is broken into four sections. The first section reviews key literature on SMEs and sustainability. This provides an elaboration of the context within which the current research question is situated. The second section examines international support programmes for SMEs in developing countries. The third section focuses on intermediary organizations. Here insights from the literature on intermediaries and their roles in providing sustainability support programmes are brought to focus. Emphasis is given to intermediaries within the wider policy network in order to understand both their engagement with SMEs as well as their interactions with other members of the network. The fourth and final section is an exploration of the literature on public organizational performance. A critique of the literature is given at the end of each section. The chapter concludes by re-evaluating the research question against the backdrop of identified research gaps.

2.1 Review Method

Repko (2012) points out the inherent complexity of studying a topic relating to sustainability. It often requires an interdisciplinary approach, which is the approach adopted in this study. Conducting the interdisciplinary literature review for this dissertation followed the two-step recommendation of Repko: the initial search and the full-scale search.

2.1.1 Initial Search

In carrying out an initial search, research areas most closely related to the current topic are identified by breaking down the research question into its constituent keywords followed by an evaluation of the core text related to each keyword. Table 2.1 summarizes the research areas and their relevance. Other possibly related fields not

listed in table 2.1 exist including the research on inter-organizational networks, innovation systems or stakeholder theory. However, after preliminary review of core literature only fields listed in table 2.1 were deemed most relevant. In the rest of this study, reference is made to literature beyond the scope delimited by table 2.1 wherever applicable.

Question: What are the key drivers of the intermediary’s performance in the delivery of sustainability support programmes to SMEs in developing countries?	
Related Research Area	Potential Contribution
Organizational Performance in Public Service	<ul style="list-style-type: none"> • Theories of organizational performance in relation to the intermediary as a public organization • Insights on frameworks, best-practices for effective performance of the intermediary
SME and Sustainability	<ul style="list-style-type: none"> • General insights on sustainability and its adoption in small and medium enterprises
Industrial networks and intermediaries	<ul style="list-style-type: none"> • Insights on how the intermediary operates within the industrial network of SMEs
International SME Support Programmes	<ul style="list-style-type: none"> • Insights on the role and structure of SME programmes in developing countries implemented through support from international donors and partners

Table 2.1: Most relevant literature

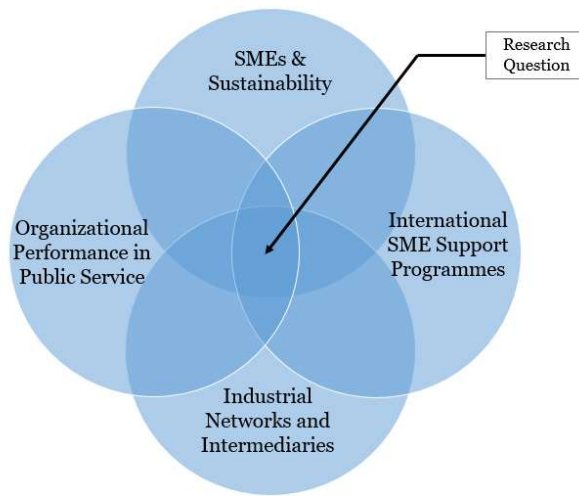


Figure 2.1: An illustration of the relationship with existing literature

Conducting an initial search for key literature in these fields involved a complex and iterative process of making inquiries from librarian and browsing through books according to their subject categorizations or based on keyword match. This process was supplemented by internet search using platforms such as Google Books and Amazon Books, as well as through seeking recommendations from more experienced colleagues. Identifying the key books and authors was the main focus of this phase. Books covering the intersection of all four fields of figure 2.1 (or at least some) were considered more relevant than books addressing only a single field.

2.1.2 Full-literature Search

The second phase of literature search involved a combination of a direct search and a snowballing process as illustrated in figure 2.2. Identifying the top journal articles was the main focus of this phase

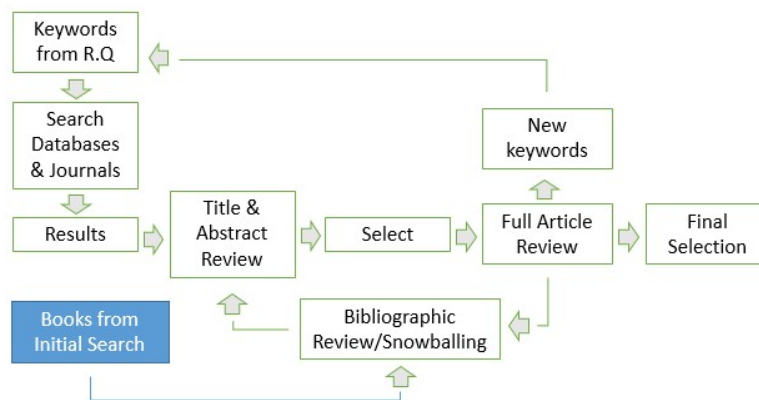


Figure 2.2: Searching for key literature

- Only articles published in English were considered and no date restrictions were applied
- Final selection involved a bias for well-cited peer-reviewed publications

The limitation of the search process illustrated in figure 2.2 are the choice of keywords, databases and/or the publications used in starting the snowballing process. However, by combining multiple strategies including the use of synonyms, wildcards, and by performing multiple search iterations, these limitations were mitigated. Alternative approaches may be adopted, for example by conducting a systematic literature review on each of the fields of table 2.1. However, this would require a significant amount of

additional time as well as a team of disciplinary experts. It also requires that each research area of table 2.1 should have a clear-cut body of literature, which is often not the case. While the chosen approach may not guarantee absolute comprehensiveness, it arguably provides a reasonable representation of the most relevant literature.

2.1.3 Summary of Results

Over an 18-month period, 1500+ publications were reviewed. The most relevant of these include 14 books covering the intersections between the fields depicted in figure 2.1 and 267 journal articles. The distributions of journal articles between years and sources are indicated in figures 2.3 (a) and (b).

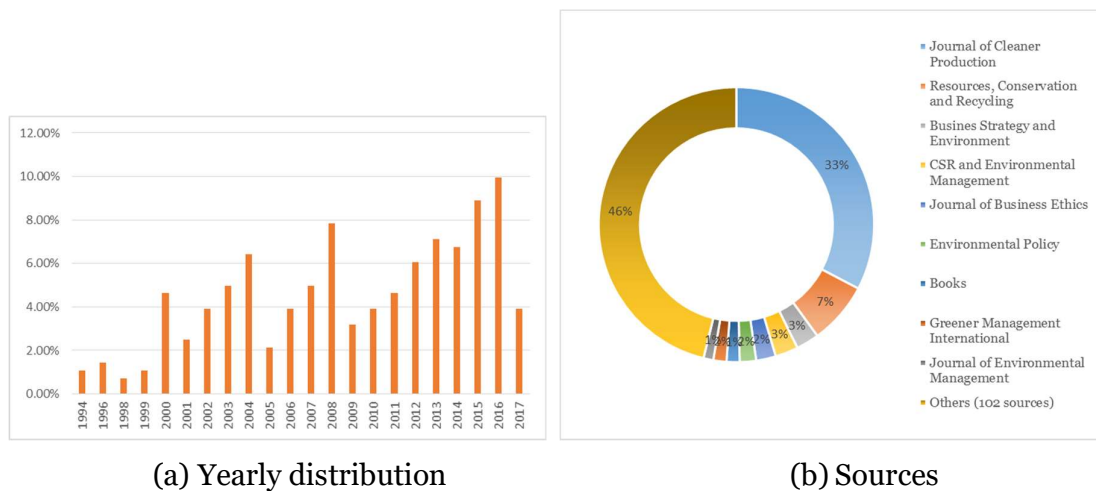


Figure 2.3: Key publications

A number of grey materials were also included in the review. Most notable among these were publications of the United Nations Industrial Development Organization (UNIDO) and the United Nations Environment Programme (UNEP) – pioneers in implementing sustainability support programmes for SMEs in developing countries.

2.2 Exploring the SME Context

Defining an SME is a difficult task (Ayyagari et al, 2007; Curran & Blackburn, 2000; Storey, 1994; Welsh & White, 1981). The most common approach to defining SMEs is through quantitative values such as number of employees, total net assets, investment levels, and financial turnover (Ayyagari et al, 2007; European

Commission, 2005). This approach is popular among researchers and policy-makers due to ease of data collection and statistical manipulation (Curran & Blackburn, 2000). The problem however, is that what constitutes an SME could vary significantly across sectors; for example, between the oil refining sector and the local street retail sector. Relying exclusively on the quantitative approach therefore tends to be both simplistic and misleading (Curran & Blackburn, 2000; Storey, 1994).

An alternative approach to defining SMEs is to describe them qualitatively in the bid to overcome limitations of a quantitative definition. The Bolton Committee offered one of the earliest and most renowned qualitative definitions (Bolton & Committee of Inquiry on Small Firms, 1971:1):

"First, in economic terms, a small firm is one that has a relatively small share of its market. Secondly, an essential characteristic of a small firm is that it is managed by its owners or part-owners in a personalized way, and not through the medium of a formalized management structure. Thirdly, it is also independent in the sense that it does not form part of a larger enterprise and that the owner-managers should be free from outside control in taking their principal decisions."

Descriptive definitions like this clearly demonstrate a fair consideration of the key characteristics of an SME. However, they also suffer from a number of challenges: first, they are subject to interpretation and second, they offer little analytical usability (Curran & Blackburn, 2000; Storey, 1994). It is worth pointing out that term SME is popular mainly among policymakers, support organizations, and researchers. It hardly represents how SMEs describe themselves (Gibb, 2000; Grayson, 2003; Hillary, 2000). SMEs more readily describe themselves as businesses than as SMEs. Although size matters, SMEs speak more in terms of customers and suppliers, profit margins and cash-flow, growth and markets (Hillary, 2000). A useful alternative to better understanding SMEs is to contrast them with the larger enterprise. Based on the assumption that small firms are fundamentally different from the larger firms, researchers have continued to build more elaborate qualitative definitions of SMEs (Penrose, 1959; Welsh & White, 1981).

2.2.1 SMEs versus Large Enterprises

The key differences between SMEs and large enterprises can be categorized under a number of headings: ownership, access to resource, knowledge, power, personal relationships, formality, and independence (Curran & Blackburn, 1994; Lepoutre & Heene, 2006; Spence, 1999). Distinctions between SMEs and large companies are summarized in Table 2.2.

SME	Large Company
Dominant role of the entrepreneur/owner	Delegated management control between board of directors and shareholders
Resource poverty (capital, time, knowledge and skilled personnel)	Economy of scale, resource abundance
Flexible organization capacities	Bureaucratic rigidity
Focus on short term	Focus on mid to long term
Strong local/regional focus and customer needs orientation	Strong (inter)national focus and looser ties with customers
Low degree of formalization	High degree of formalization

Table 2.2: Characteristics of SMEs versus Large Companies (Source: Bos-Brouwers, 2010)

In terms of ownership and its influence, the dominant role of the entrepreneur in an SME is widely acknowledged (Curran & Blackburn, 1994; Spence, 1999; Hillary, 2000). This implies that the enterprise's behaviour very often mimics the whims and personal disposition of its owner-manager. In terms of resources, SME owner-managers are often reportedly short of time, and lack specialized knowledge. They are also often described to adopt the "firefighting" approach to management, in which case the owner-manager is preoccupied with addressing operational problems for the short-term survival of the firm (Lepoutre & Heene, 2006; Spence, 1999). Penrose (1959) summed up the key differences between SMEs and large firms with the quip, "SMEs and larger enterprises are as fundamentally different as a caterpillar and a butterfly". Even after metamorphosis, one is still not merely a larger version of the other. This view is supported widely in the literature (Gibb, 2000; Jenkins, 2004; Welsh & White, 1981).

With regard to sustainability, Jenkins (2004) provides an overview of differences between SMEs and their larger counterparts (Table 2.3).

	Sustainability in Large Companies	Sustainability in SMEs
Who	Responsible to wide range of stakeholders	Responsible to fewer and/or different stakeholders
	Perceived responsibility to society at large	Perceived responsibility to the local community
	Importance of shareholders	SMEs often do not have shareholders
Why	Protection of brand image and reputation	Protection of customer business
	Pressure from consumers	Pressure from business customers down the supply chain
	Shareholder pressure, the SRI movement	Pressure from money lenders? Unaffected by SRI movement
	The business case	Proven business case lacking
How	Based on corporate values	Based on principles of owner-manager
	Formal strategic planning for sustainability	Informally planned sustainability strategies
	Emphasis on standards and indices	Emphasis on intuition and ad hoc processes
	Key involvement for sustainability professionals	No dedicated personnel for sustainability programmes
	Mitigation of risk	Avoidance of risk

What	Prominent campaigns e.g. Cause Related Marketing	Small scale activities such as sponsorship of local football team
	Publicity linked to sustainability activities	Activities often unrecognised as sustainability related

Table 2.3: Comparing perspectives on sustainability in SMEs and Large Companies
(Adapted from Jenkins, 2004)

Table 2.3 shows that perceptions of sustainability often varies considerably between SMEs and large companies. In particular, SMEs are often found to be unaware of their environmental impact, the existing regulations, or what they could do to improve sustainability performance (Hillary, 2000; Revell & Blackburn, 2007; Rowe & Hollingsworth, 1996). Many of them perceive sustainability issues as peripheral and not core to their business, or as an issue that should only be a priority for large-scale industries (Bradford & Fraser, 2008; Drake et al, 2004; Redmond et al. 2008; Tilley, 1999; Hillary, 2000). SMEs can also be quite difficult to regulate as their large population, wide geographical spread, structural and operational diversity often makes regulation and monitoring challenging (Hillary, 2000; Revell et al, 2010; Tilley, 1999). In addition, SMEs often have limited direct say in environmental policy debates compared to larger enterprises, despite being a major economic contributor (Hillary, 2000; Khanna, 2001).

2.2.2 The Case for Sustainability

Identified benefits of sustainability practices to SMEs from both perspectives are summarized respectively in tables 2.4 and 2.5.

Benefits	Source			
	<i>Ecology & Environment</i>	<i>Health & Wellbeing</i>	<i>Diversity</i>	<i>Communities</i>
Cost Savings	Energy savings Reduced waste disposal costs	Lower staff turnover Lower training costs	Wider sources of new staff Lower recruitment cost	Less hostility or vandalism Reduced security costs or insurance and

Improved Productivity	Proper waste management	Healthier and happier employees Less absenteeism	Less downtime as new staff learn	Better motivated staff
Increased Revenue	Access to corporate tender opportunities Customer of choice for eco-consumers	More continuity in customer service	Better understanding of diverse markets Representative of markets served	Raised profile Active in networks which helps to identify new business opportunities

Table 2.4: Benefits of sustainability practices to SMEs from economic perspective
(Adapted from Grayson, 2003)

Table 2.4. summarizes the benefits of adopting sustainability practices in SMEs as shown in the literature (Grayson, 2003, Hillary, 2000; Jenkins, 2009). These benefits are commonly viewed from two perspectives: the economic or business case perspective (Aragón-Correa et al, 2008; Grayson, 2003; Hillary, 2004) and the stakeholder perspective (Hillary, 2004; Stubblefield Loucks et al, 2010).

Stakeholder	Benefit
Customers	Captures consumers with social and environmental values
Employees	Attracts and retains high quality employees Helps to enhance employees' problem-solving and innovation skills which could create competitive advantage
Government	Positive relationships with governments Regulatory compliance
Investors	Higher likelihood of attracting investors who prioritize social and environmental performance

Table 2.5: Benefits of sustainability practices to SMEs from stakeholder perspective
(Adapted from Stubblefield Loucks et al, 2010)

Although researchers have argued that there is a strong case for sustainability in SMEs (e.g. Grayson, 2003; Hillary, 2004) evidence suggests mixed perception of sustainability among SMEs. While a number of studies have identified positive perception (Aragón-Correa et al, 2008; Battisti & Perry, 2011; Klewitz & Hansen, 2014; Parker et al, 2009) others have observed otherwise (Bradford & Fraser, 2008; Drake et al, 2004; Hillary, 2004; Redmond et al. 2008; Tilley, 1999). Perception depends on contextual factors including economic, sector, and technological factors which are constantly evolving (Battisti & Perry, 2011; Brammer et al, 2012; Hillary, 2000; Revell et al, 2010).

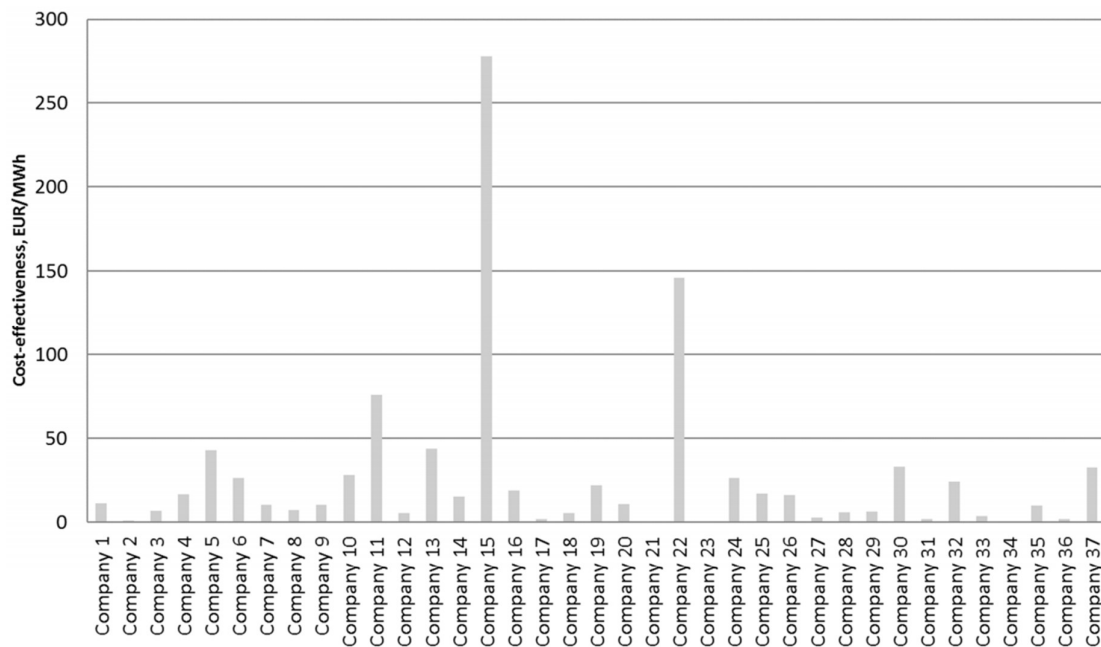


Figure 2.4: An illustration of performance variability in sustainability projects
(Source: Paramonova & Thollander, 2016)

Figure 2.4. illustrates the variability of results obtained during sustainability project implementation. The figure shows the result of a study conducted in Sweden (Paramonova & Thollander, 2016) where 713 SMEs had been supported through a sustainability-oriented energy audit scheme. In the study it is noted how cost-effectiveness varied significantly across the sample of 37 companies (compare companies 15 & 22 to the average of others). Although Parmonova & Thollander do

not offer explicit explanation for the variation, Hillary (2000) notes that such performance variability may be a reason why SME owner-managers may express uncertainty about sustainability.

A number of studies suggest there are "disbenefits" or negative effects of adopting sustainability practices in SMEs leading to irritation and resistance (Hillary, 2004). These negative effects can be categorized under three headings:

- Resources: More costs, time, skills required than anticipated
- Rewards: No market rewards after implementation
- Implementation surprises: Inadequacies encountered during implementation process

Engaging SMEs on the benefits of sustainability often proves difficult, given the possibility of these disbenefits (Hillary, 2004; Redmond et al. 2008; Revell & Blackburn, 2007; Tilley, 1999).

To address the challenges of engaging SMEs on sustainability, researchers have called for a de-homogenization of SMEs in order to better tailor engagement processes to suit the SME categories. It has been noted that SMEs are not a homogeneous group despite the common practice of bundling them together through convenient quantitative parameters (Curran and Blackburn, 2000; Storey, 2016). SME diversity is not only evident across sector and geography, but also in their strategic responses to sustainability (Aragón-Correa et al. 2008; Brammer et al, 2012; Klewitz & Hansen, 2014; Parker et al, 2009).

Based on a review of key literature on SMEs and sustainability, Parker (2009) noted four extreme categories of SMEs based on their sustainability strategy: the advantage-driven, compliance-driven, profit-driven, and the environment-driven. These strategies are determined by a number of factors including financial resources, management style, and organizational structure (Aragón-Correa et al, 2008; del Brìo & Junquera, 2003; Noci & Verganti, 1999). An overarching argument of such studies is that SMEs need to be segmented, and the benefits of sustainability need to be tailored to suit individual SMEs.

2.2.3 Sustainability Tools for SMEs

Sustainability tools and methodologies available for SME adoption are vast (Hillary, 2000; Johnson & Schaltegger, 2016). One way to discuss these tools is to categorize them under three themes (Klewitz & Hansen, 2014):

- Process improvement methodologies, e.g. cleaner production, eco-efficiency
- Product/service improvement methodologies, e.g. life-cycle analysis, eco-design, design for environment, green procurement, product-service systems; and
- Organizational/Systems improvement methodologies, e.g. environmental management systems, sustainable business model

In addition to the tools and methodologies for directly improving sustainability performance of SMEs, there are tools for assessing, reporting, and managing performance. Johnson & Schaltegger (2016) identify eight such tools including Balanced Scorecard, Eco-Mapping, Better Business Plan, and VerDEE. A widely promoted methodology among SMEs in developing countries is cleaner production (Hillary, 2000; Luken et al, 2016; van Ber-ke, 2011). The United Nations Environment Program, UNEP provided a definition for cleaner production in 1989:

"the continuous application of an integrated preventive strategy to processes, products and services, to increase efficiency and reduce risks to human and the environment."

This definition has since been revised by different authors as the concept evolved in practice (Glavič & Lukman, 2007).

Figure 2.5 illustrates the landscape of common sustainability tools and methodologies. The landscape may be defined based on a number of factors – the driving force (business-driven vs regulation-driven); the range of media covered, i.e. water, air, soil (single-media vs multi-media); or the analysis boundary (pollutant focus vs system focus). Sustainability tools and methodologies may also be classified as prevention-oriented or remediation- or cure-oriented. It is often challenging to fit a given tool into one category as tools may be applied differently depending on the industry. Glavič and Lukman (2007), Klewitz and Hansen (2014) and Lozano (2006), note that there are inter-relationships, overlaps, and complementarities between the sustainability tools

and methodologies. Cleaner production is often considered a tool, a technique as well as an overarching concept cutting across multiple tools and methodologies (van Berkel, 2007). A similar observation may be made on eco-Efficiency as indicated in Figure 2.5. Authors have pointed out that SME sustainability tools work best when applied in combination (Kjaerheim, 2005; Lozano, 2012; van Berkel, 2007).

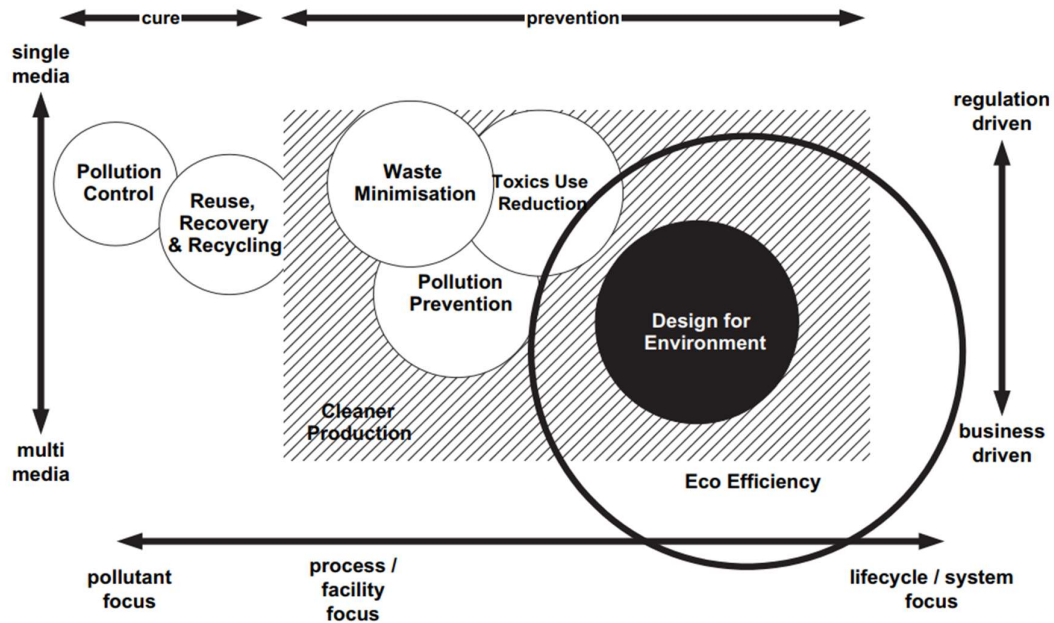


Figure 2.5: Interrelationships and overlaps between the sustainability tools and methodologies (Source: van Berkel, 2007)

Studies have highlighted the need for research on how to best tailor sustainability tools to suit SMEs (Jenkins, 2004; Klewitz & Hansen, 2014). Many sustainability tools are designed with large companies in mind (Jenkins, 2004; Klewitz et al, 2012; Rowe & Hollingsworth, 1996; Rutherford et al, 2007; Spence & Schmidpeter, 2003; Tilley, 2000). SMEs are however, not merely miniaturized replica of larger enterprises (Aragón-Correa et al, 2008; Klewitz & Hansen, 2014; Murillo, & Lozano, 2006; Parker, 2009; Penrose, 1959; Stubblefield Loucks et al, 2010; Welsh & White, 1981). Thus implementation of these tools in SMEs becomes challenging. Based on a survey of key literature, Johnson & Schaltegger (2016) lists a number of criteria tools on sustainability need to satisfy in order to be useful to SMEs:

- Simplicity/User-friendliness

- Practicality/Cost-effectiveness
- Adaptability/Flexibility
- Company-tailored
- Locally-focused
- Group and network-oriented

2.2.4 Barriers & Drivers of Adoption

Figure 2.6 illustrates two cycles in the promotion of sustainability practices among SMEs – cycles of action and inaction – between which lies a barrier. Breaking the barrier is the utmost concern for stakeholders (Hillary, 2000). Awareness-raising constitutes a key mechanism by which stakeholders seek to move SMEs from inaction to action. However, awareness-raising programs may suffer from other barriers including logistical barriers (SMEs tend to be dispersed and difficult to reach) and communication barriers (terminologies and concepts may be perceived as foreign).

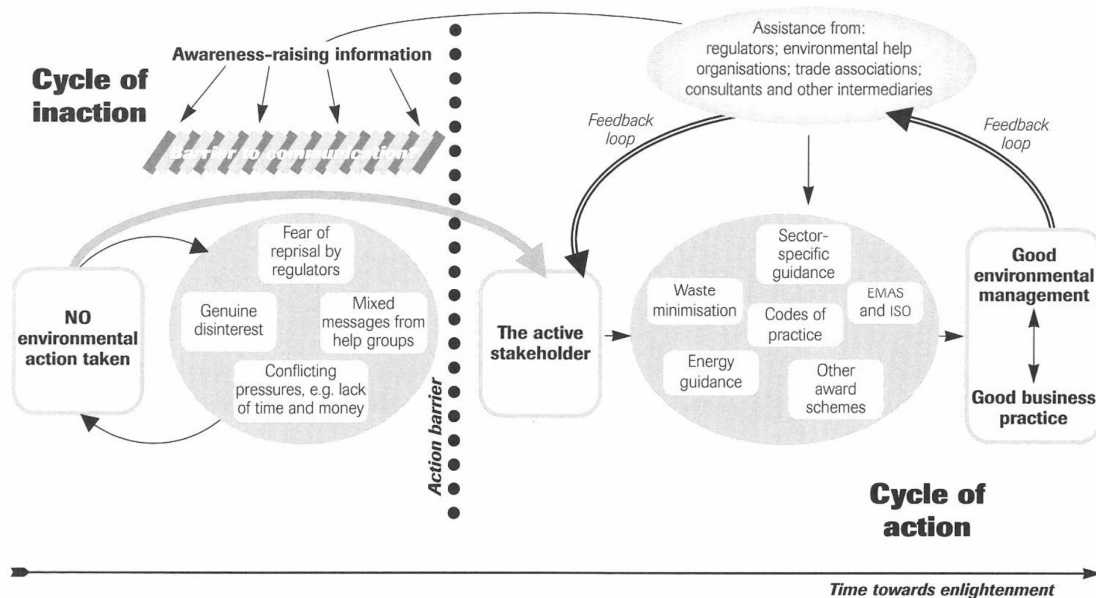


Figure 2.6: Breaking the action barrier (Source: Hillary, 2000)

Table 2.6a&b summarize the barriers and drivers categorized under the internal-external framework. Walker et al. (2008) suggests that the barriers and drivers of sustainability adoption in SMEs, vary based on perspectives. From the SME owner-manager's perspective, barriers include their personal dispositions, the enterprise characteristics and the availability of resources; while from the external agency perspective barriers include methods of communicating and engaging effectively with the SME. The internal-external framework has been used in a number of other studies including (Hillary, 2004; Revell & Rutherford, 2003).

Internal	External
Financial	Stakeholder Pressure
Technical	Support network
Attitudinal	Physical Infrastructure
Organizational	Market Demand

Table 2.6a: Barriers and drivers of sustainability adoption in SMEs

		Factors	Description/Examples
Benefits	Internal	Organizational	Improvement in product and process quality
		Financial	Cost savings from reduced use of energy, water and materials
		People	Improvement in employee skill, motivation and engagement with management
	External	Commercial	Increased customer satisfaction; Gains in competitive advantage; Better insurance deals
		Environmental	Reduced pollution; Assured legal compliance; Improved environmental performance
		Communication	Enhanced public profile; Better stakeholder relationships; Industry leader status
Disbenefits	Resources	Higher-than-expected expenditure on labour, certification, time and other resources	
	Lack of rewards	Limited market reward	
	Implementation surprises	Misleading or confusing consultants; Underestimation of communication requirements; technical difficulties; challenges with stakeholder management	

Barriers	Internal	Resources	Limited time, skill, capital; Competing priorities; High turnover rate; Lack of environmental champion
		Understanding and perception	Limited awareness of benefits; Uncertainty or fear of doing the wrong thing; Perception of high costs of implementation; Perception of bureaucracy; Limited understanding of sustainability concepts and their relationships
		Implementation	Interruption by competing priorities; Discontinued perception of relevance; Uncertainties about effectiveness; Limited independence of internal auditor; other technical difficulties
		Attitudes and Company culture	Limited or inconsistent support from top management; Resistance to change; Limited buy-in from key personnel; Negative prior experiences
	External	Certifiers/verifiers	High cost of third-party services; Lack of experience service providers; Duplication of efforts between internal and external service providers; Variability in third-party approaches to service delivery; Distortion in service-provider market
		Economics	Changing economic climate leading to reduction in priority of sustainability issues; Insufficient benefits; Uncertain market value
		Institutional weaknesses	Limited promotion; Lack of accessible financial support; Lack of strict legislative framework; Absence of central/authoritative information source
Support and guidance		Lack of experienced consultants; Inconsistency of approach; Limited external assistance; Lack of sector-specific tools and examples	

Table 2.6b: Factors influencing uptake of sustainability among SMEs (adapted from Hillary, 2004)

Financial

A key driver or barrier for sustainability adoption among SMEs is the availability of financial resources (Frijns & van Vliet, 1999; Hillary, 2000; Revell and Blackburn, 2007; Walker et al, 2008). Based on a review of sustainability practices in SMEs Hillary (2004) observed the critical role of financial resources. Providing adequate financial resources to help SMEs acquire skills and technology for sustainability is a common policy recommendation (Hillary, 2000; Phillip et al, 2006). In addition to

financial resources, financial outcomes are also an important driver for SMEs sustainability adoption (Hillary, 2000; Meath et al, 2016)

Technical

A key barrier SMEs face with regard to sustainability is the lack of technical capacity. Low levels of eco-literacy and lack of expertise in environmental management systems were identified as barriers in studies such as Revell & Blackburns (2007), Hillary (2004), and Tilley (2000). In addition, sustainability tools tend to be developed with the larger companies in mind leading to technical incompatibility with the SMEs (Jenkins, 2004; Klewitz & Hansen, 2014). Researchers have called for sustainability tools to be tailored to suit the technical requirement of SMEs (Aragón-Correa et al, 2008; Klewitz & Hansen, 2014; Murillo, & Lozano, 2006).

Attitudinal

Many studies have highlighted the critical role played by the owner-managers' attitude in determining uptake of sustainability by SMEs (Battisti & Perry, 2011; Hillary, 2000; Murillo & Lozano, 2006; Spence & Rutherford). SMEs are often found to be unaware of their environmental impact, the existing regulations, or what they could do to improve sustainability performance (Hillary, 2000; Revell & Blackburn, 2007; Rowe & Hollingsworth, 1996). Many of them perceive sustainability issues as peripheral and not core to their business, or as an issue that should only be a priority for large-scale industries (Bradford & Fraser, 2008; Drake et al, 2004; Redmond et al. 2008; Tilley, 1999; Hillary, 2000).

Tilley (2000) examined the framing of environmental discourse among SMEs and found that they mostly adopt a shallow ecology perspective in which case they are passive and are merely seeking to be governed. This framing contrasts sharply with the idea of enterprises playing an active role in society with regards to sustainability (Tilley, 2000). Tilley (1999) also observed a 'value-action gap' which refers to the absence of sustainability adoption despite some SME owner-managers' positive disposition towards environmental and social issues. Other seemingly trivial attitudinal issues exist which prevent SMEs from proactively engaging on sustainability including not wanting to do the 'wrong thing' (Roberts et al, 2006). These issues as pointed out in Redmond & Walker (2009) and should not be treated with levity.

Organizational

Organizational characteristics of the SME including its size, ownership structure, business culture have been identified to influence adoption of sustainability (Battisti & Perry, 2011; Hillary 2004; Lepoutre & Heene, 2006; Stubblefield Loucks et al, 2010). Although research has placed more emphasis on size, other organizational characteristics are equally influential (Aragón-Correa et al, 2008; Lepoutre & Heene, 2006). The small nature of SMEs could lead to shorter lines of top-down communication, and nimbleness during sustainability decision-making and implementation (Aragón-Correa et al, 2008).

In terms of business culture SMEs have been identified to be less formal (Gibb 2000; Jenkins, 2004). This means that SMEs might face a barrier using sustainability tools which have been developed for large companies where the assumption is that formal systems are in place (Johnson & Schaltegger, 2016). One interesting example of the impact of organizational characteristics is the paradox of knowledge acquisition. SMEs often express shortage of knowledge despite the abundance of information availed to them through various state-sponsored support programmes (Hillary, 2000; Lepoutre & Heene, 2006). This observation is attributable to the fact that knowledge development mostly takes an implicit form in SMEs – acquired organically through experience (Lepoutre & Heene, 2006).

Stakeholder Pressure

The key stakeholders driving sustainability uptake among SMEs are established in the literature (Hillary, 2004; Hillary, 2000):

- Customers
- Local government
- Local community
- Regulators
- Employees

Other important stakeholders include suppliers, competitors, and financing institutions. Both internal stakeholders, i.e. employees, and the external stakeholders are considered important (Hillary, 2004; Lepoutre & Heene, 2006; Stubblefield Loucks et al, 2010). However, when referring to stakeholders, the literature tends to

focus more on the external (Murillo-Luna et al, 2008). In a review of 33 studies, SMEs were found to experience minimal pressure from external stakeholders leading to a low drive to adopt sustainability (Hillary, 2004). The common notion that SMEs experience top-down pressure in their supply chains has also been challenged in some studies (Revell & Blackburn, 2007). This pressure is said to be limited to the first-tier suppliers of large-companies, extending only minimally to other SMEs within the supply network.

Studies such as Murillo-Luna et al. (2008) have found that stakeholders exert different levels of pressure leading to variable responses by SMEs. With regard to regulators, SMEs have limited motivation to adopt sustainability. One reason for this is that sustainability offers limited opportunity for SMEs to enhance their relationship with regulators (Drake et al, 2004; Revell & Blackburn, 2007). SMEs have limited direct say in environmental policy debates compared to larger enterprises, despite being a major economic contributor (Hillary, 2000; Khanna, 2001).

Support network

External collaboration and networking are key methods of acquiring sustainability competencies among SMEs. Supply chain partnerships, trade associations, regional business networks, and public-private partnerships are examples of the networks used in this process. Support networks can be considered drivers or barriers depending on their availability, accessibility, and the level of support they offer (Bradford & Fraser, 2008; Collins et al, 2007; Friedman & Miles, 2002; Halila, 2007; Hansen & Klewitz, 2012; Hillary, 2004; Stubblefield Loucks et al, 2010). Policymakers have often delivered support programmes to SMEs through these networks. In cases where they do not already exist, new ones are formed to support delivery of the policy intervention (Hillary, 2000; Street & Cameron, 2007).

Physical Infrastructure

Although not commonly highlighted in the literature, infrastructure is another critical factor which determines the uptake of sustainability among SMEs. In the case of waste management for example, the presence of facilities or infrastructure to support the collection, transportation and delivery and processing of waste materials is critical. Challenges arise when the SMEs are widely dispersed geographically, or are located in areas with minimal access to critical physical infrastructure.

Market Demand

Market demand has been identified as having potential to drive sustainability in SMEs. The sustainability business case as promoted by governments and local agencies tend to portray sustainability as a means for increasing sales, entering new markets and enhancing profitability (Grayson, 2003; Hillary, 2000; Revell & Blackburn, 2007). However, studies have found that SMEs often consider market demand as more of a barrier than a driver (Drake et al, 2004; Revell et al, 2010; Rutherford et al, 2000; Hillary, 2000).

There have been attempts to rank the barriers and drivers in their order of importance. Hillary (2004) for example notes that lack of human resources – a form of organizational barrier – is more prominent than lack of financial resources.

2.2.5 Recent Reviews on SMEs and Sustainability

Since the early days of research on SMEs & Sustainability, steady progress has been made in improving understanding of this topic. Table 2.7 highlights the key reviews conducted so far. From these reviews, one may observe that research on SME and sustainability has evolved in three key ways: a changing conceptual view of SMEs, an increasing integration of established theories, SME segmentation and in-depth analysis

2.2.5.1 A changing conceptual view of SMEs

There is a clear distinction between the typical view of the SME in the early phase of research on SME and sustainability – i.e. up to early 2000s – and the view of the SME

<i>Publication</i>	<i>Focus</i>	<i>Method</i>	<i>Main Contribution</i>	<i>Future Research Suggestions*</i>
Klewitz & Hansen, 2014	Sustainability-Oriented Innovation (SOI) practices among SME	Interdisciplinary, systematic review between 1987 and 2010	<ul style="list-style-type: none"> • Developed an integrated framework which relates SMEs strategic sustainability behaviours to their innovation practices • Argues that increasing interaction with external actors including support service providers can increase SME innovation capacity for sustainability 	<ul style="list-style-type: none"> • Social learning processes for SOI among SMEs • Tailoring SOI tools for SMEs • Focus on SMEs capacity for radical sustainability innovations rather than maintaining the traditional view of SMEs as reactive under-resourced entities • Increased adoption of well-established theories • Segmentation of SMEs for further analysis
Parker et al, 2009	Environmental Interventions for SMEs	Systematic review of 50 empirical articles from 2003 to 2008	<ul style="list-style-type: none"> • Identified four categories of SMEs based on two parameters: business performance and environmental commitment • Developed Conceptual framework for targeting policy interventions to each category 	<ul style="list-style-type: none"> • Segmentation of SMEs for further analysis to better understand their intervention responses • Suggests segmentation based on countries and industries)
Hall et al, 2010	Entrepreneurship for Sustainable Development	Summarizes key publications on sustainable development and	<ul style="list-style-type: none"> • Identified key research streams in the emerging field of entrepreneurship and sustainable development 	<ul style="list-style-type: none"> • Conditions under which public-policy positively influences emergence of

		entrepreneurship from select journals		sustainable entrepreneurship
Walker et al, 2008	Barriers, drivers, best practice and innovation on SMEs and the Environment	Review of 113 publications	<ul style="list-style-type: none"> • Six key adoption drivers identified: motivation, knowledge, legislation, resources, voluntary engagement, stakeholders • Three key barriers from SME perspective: SME characteristics, resource availability, and owner-manager's attitude • Two key barriers from government or agency perspective: effective communication of environmental message, effective SME engagement 	<ul style="list-style-type: none"> • How to best use education or non-regulatory approach for overcoming barriers
Del Brío & Junquera, 2003	Environmental innovation management in SMEs	Review of key publications in the economic literature	<ul style="list-style-type: none"> • Nine key determinants of SMEs environmental strategy: Financial resources, Organizational structure, Management Style, Human resources, Environmental management status, Manufacturing activity, Technological approach, Innovative capacity, External Cooperation • Argues the need for public administration to tailor interventions to suit individual SMEs 	<ul style="list-style-type: none"> • Empirical evaluation of economic theories' assumptions on SME environmental strategy

Table 2.7: Literature reviews on SMEs and sustainability (part of this is adapted from Klewitz & Hansen, 2014)

**only relevant suggestions are included*

post-2010. In the early phase, SMEs were constantly described as lacking in awareness or knowledge of sustainability issues (Hillary, 2000; Revell & Blackburn, 2007; Rowe & Hollingsworth, 1996). They were described to consider sustainability as irrelevant – only applicable to the larger firms (Bradford & Fraser, 2008; Drake et al, 2004; Redmond et al. 2008; Tilley, 1999; Hillary, 2000). They considered their negative environmental impact negligible and would only adopt sustainable practices in the face of strong regulatory push (Hillary, 2000). Owing to minimal consumer pressure, and due to the fact that many of them were not first-tier suppliers of larger firms, SMEs could easily maintain a hesitant disposition towards sustainability.

However, seminal studies from the late-2000s showed that this dominant view of SMEs might not be entirely accurate. Revell et al. (2010) conducted a cross-sector survey of 220 SMEs in the UK; where previous studies had found limited sustainability inclination among SMEs. The authors found that SMEs were actively involved in recycling, energy management, green procurement and other sustainability-oriented practices. Battisti & Perry (2011) conducted interviews with 50 SMEs in New Zealand and found that the traditional compliance driven-SMEs were only one category of SMEs – other categories of SMEs exist which are sustainability-proactive.

A number of other studies including Aragón-Correa et al. (2008), Parker (2009), and Klewitz & Hansen (2014) have arrived at a similar conclusion: that not all SMEs are the ignorant resource-strapped pessimistic laggards they have been typically described to be. Rather many proactively engage with sustainability issues similar to some of their larger counterparts. Based on these observations, a number of studies (e.g. Aragón-Correa et al. (2008), Brammer et al. (2012), Lepoutre & Heene (2006), Stubblefield Loucks et al, 2010) have in fact argued that sustainability in an enterprise is not dictated by size. In their literature review, Klewitz & Hansen (2014) took this debate further by advocating for a shift in research focus towards the sustainability-oriented-innovation practices of SMEs. The systematic literature review (ibid) argues that SMEs are involved in a wide array of sustainability-oriented innovation practices, and these should be at the heart of research focus going forward.

2.2.5.2 An increasing invocation of established theories

A second trend in SME and sustainability research involves the increased invocation of established theories. Research frameworks have been constructed from theories

including network theories, innovation systems theory, and stakeholder theory. Stakeholder theory has been used to formulate the sustainability business-case for SMEs (Stubblefield Loucks et al, 2010), to explain the reason for differences in sustainability response patterns of SMEs (Murillo-Luna et al, 2008; Nejati et al, 2014) and to explain how SMEs engage in sustainability management (Harangozó & Zilahy, 2015). Gadenne et al (2009) tests the influence of various stakeholder groups on SME sustainability performance. Club theory, sometimes considered a variant of network theory, has been used to explain governance and firm behavioural patterns in voluntary sustainability programmes involving SMEs (Potoski & Prakash, 2013; Prakash & Potoski, 2006; Van't Veld & Kotchen, 2011).

The innovation theory of diffusion was used in Halila (2006) to explain how SMEs can be supported in their adoption of environmental management systems. Boundary spanning theory was adopted in Klewitz (2017) to explain how SMEs interact with their networks in acquiring sustainability-oriented knowledge. Absorptive capacity is another theoretical framework that provides a number of constructs which often prove useful in understanding SMEs' behaviour with regard to sustainability. Its constructs include acquisition, assimilation, internal capabilities, and external cooperation.

Knowledge acquisition practices of sustainability-oriented SMEs were studied by Johnson (2017) using the absorptive capacity framework. A similar approach has been adopted in other related studies including Hansen & Klewitz (2012), Lepoutre & Heene, (2006) and Roy & Thérin (2008). Some studies have also used combinations of theories (e.g. innovation and network – von Malmborg, 2007). Van Berkel (2007) notes that studies on sustainability support for SMEs has adopted theories ranging from environmental psychology to technology diffusion.

The call for further integration of established theories is echoed in the recent literature reviews of Table 2.6. In concluding their systematic review, Klewitz & Hansen (2014) for example, suggest that future research should seek to ground the ongoing debate in theories of absorptive capacity, the resource-based view, the natural resource-based view, and the knowledge-based view of the firm. Organizational learning and institutional theory were also alluded to in their study as potential lenses for further research.

2.2.5.3 SME segmentation and in-depth analysis

SMEs are not a homogeneous bunch (Curran & Blackburn, 2000). However, in the early phase of research on SMEs and sustainability, key publications appear to have lumped these enterprises under a single size-based umbrella. The reason for this might be due to the fact that earlier studies were mainly attempting to create a distinction between SMEs and larger firms in order to lay the foundation for SME-focused sustainability research (e.g. Jenkins, 2004; Del Brio & Junquera, 2003; Hillary, 2000; Spence, 1999). Research has however found that the engagement of SMEs in sustainability is not only a function of size; rather it depends on a number of contextual variables including management's disposition, business network influence, and other organizational characteristics (Aragón-Correa et al, 2008; Stubblefield Loucks et al, 2010; Murillo-Luna et al, 2008). Problems of aggregating SMEs under one category include inadequately targeted or ineffective policy interventions (Parker et al, 2009; Hillary, 2000).

In order to address the challenges of SME homogenization, segmentation based on sustainability strategies has been prescribed (Aragón-Correa et al, 2008; Battisti & Perry, 2011; Hansen & Klewitz, 2012; Parker et al. 2009; Klewitz & Hansen, 2014). A comparison of segments identified in relevant studies is shown in Table 2.8.

	Klewitz & Hansen, 2014	Parker et al. (2009)	Aragón-Correa et al. (2008)	Tilley (1999)
Sustainability Strategies identified	<ul style="list-style-type: none"> • Resistant • Reactive • Anticipatory • Sustainability-based • Innovation-rooted 	<ul style="list-style-type: none"> • Compliance-driven • Profit-driven • Advantage-driven • Environment-driven 	<ul style="list-style-type: none"> • Reactive • Proactive • Environmental leadership 	<ul style="list-style-type: none"> • Resistant • Reactive • Proactive • Sustainable/Ecological

Table 2.8: Sustainability strategies of SMEs: an emerging basis for segmentation

Although the strategy-based segmentation approach appears logical from the research or theoretical perspective, however it is not easily operationalized within the policy interventions context. Empirically amenable alternatives including segmenting based on number of workers, revenue, size, and location are used instead (Curran &

Blackburn, 2000). In spite of limitations in suggested segmentation approaches, the call for segmentation has continued to grow in the literature. From Table 2.7 the systematic review of Klewitz & Hansen (2014) suggests additional ways in which segmentation could be implemented in subsequent research, e.g. differentiating between SMEs operating in business-to-business and business-to-consumer-markets; and between micro-, small- and medium enterprises. This observation is summed up by the quote from Hillary (2004):

“The SME sector is not a homogenous sector. It is diverse and heterogeneous. Studies which seek to investigate the sector and draw conclusions about it, are to some extent, comparing not just apples and pears, but the whole fruit bowl. This paper’s conclusions have this limitation. It is recommended that future research consider parts of the sector either as sub-groups by size, i.e. micro, small and medium, or by industrial sector.”

2.2.6 Critiquing the SME and Sustainability Literature

A common thread throughout the literature on SME and sustainability (i.e. sections 2.2.1 to 2.2.5) is that the intermediary has been given limited explicit attention. One set of studies (e.g. Aragón-Correa et al, 2008; Brammer et al. 2012; Hillary, 2004; Jenkins, 2009; Lepoutre & Heene, 2006; Klewitz & Hansen 2014; Redmond & Walker, 2009; Stubblefield Loucks et al, 2010; Walker et al, 2008), have focused mainly on the SMEs, identifying the extent to which they have adopted sustainability principles, the drivers and barriers to adoption, contextual differences between SMEs among a number of others issues.

The closest the literature comes to addressing the research question is by identifying the intermediary as a source of enablement or barrier in the adoption process. For example, in Hillary (2004) – a highly-cited key article on the current topic – focus is mainly on the SME. The study identifies the drivers and barriers to SME adoption of sustainability principles to include factors such as the consultant quality (interpreted here as intermediary quality). This study as well other similar studies, however do not provide further insights on whether or how the intermediaries may improve or limit their effect in enabling or inhibiting the adoption process. Without focusing exclusively on the intermediary, these studies offer limited insights on factors

determining the intermediary's performance which the current research question seeks.

A second set of studies in the literature (e.g. Bianchi & Noci, 1998; Char-lee et al, 2016; Friedman and Miles, 2002; Klewitz, 2017; Klewitz et al, 2012; Luken et al, 2016; Meath et al, 2016; Phillips et al, 2006; Parker et al, 2009; Roberts et al, 2006; van Berkel, 2011), have explored policy interventions or sustainability support programmes at a more general level. For a number of these studies, data were collected from programme stakeholders including the SMEs, the public sponsors, and the intermediaries. However, such studies do not seek to exclusively explore the intermediary performance. Rather the focus is on the programme.

For example, in Friedman and Miles (2002) the researchers studied a UK sustainability support programme – the BBP – by conducting 35 interviews between programme developers, intermediaries and SMEs. Their conclusions are drawn with regard to the general programme, and not the intermediary in particular. Their study similar to a number of others (e.g. Holt et al 2000 and Parker et al, 2009) identify factors which influence the success of sustainability support programmes. However, any potential link between these factors and the intermediary is not made explicit in these studies [also noted in Klewitz and Hansen (2014) and Walker et al (2008)]. This significantly limits the opportunity to address the current research question.

A bold attempt to address the current research question based on insights from the literature on SMEs and sustainability is to assume that the factors identified to drive uptake of sustainability among SMEs are equally responsible for determining the intermediary's performance. For example, where the literature says “top management commitment” is a factor responsible for SME uptake of sustainability, we can assume that this is one of the factors that determines whether the intermediary performs effectively. This explanation may appear plausible. However, it is only based on unverified assumption.

There may be factors unrelated to the SME which determine the intermediary's performance given that intermediaries are a different entity from the SME and have different roles to play in the sustainability support programme. It may also be possible that not all SME-related factors apply to the intermediary to the same degree. Another possible attempt at addressing the research question is to assume that factors

identified to affect support programme success (e.g. in Holt et al, 2000 and Parker et al, 2009) are same as drivers of the intermediary performance. However, this equally falls short of the fallibility of unverified assumptions. Only through rigorous empirical studies with an exclusive focus on intermediaries could any assumptions on drivers of intermediary performance be considered theoretically admissible. Such empirical studies are currently missing in the literature.

2.3 International Support Programmes for SMEs in Developing Countries

Internationally funded support programmes are provided in developing countries to support SMEs in transitioning to more sustainable modes of production. A prominent example is the National Cleaner Production Programme.



Figure 2.7: Support flow to SMEs in developing countries (Source: Hillary, 2000)

The mechanism through which sustainability-oriented support typically reaches SMEs in developing countries is depicted in figure 2.7. The figure shows the critical role played by international NGOs and development agencies such as the United Nations Industrial Development Organization (UNIDO) and the United Nations Environmental Programme (UNEP). Both of these organizations were responsible for launching the National Cleaner Production Centre programme (Luken et al, 2016; van Berkel, 2011) which is responsible for promoting cleaner production among SMEs in developing countries. Beginning with a few developing countries in the early 90's, the programme has expanded considerably to more developing countries (Luken et al, 2016). National Cleaner Production Centres are charged with promoting sustainable

tools and practices among local SMEs, and can be considered a suitable candidate in the current study of intermediaries.

The key difference between developed and developing countries consists in the strength of institutions, the state of infrastructural development, and the developmental priorities of government (Blackman, 2010; Blackman et al, 2013; Hillary, 2000; Luken and Navratil, 2004). The effects of weak institutions and lack of quality infrastructure in some developing countries suggests that the motivations for SME engagement in sustainability could be different from those in developed countries (Blackman, 2010; Lund-Thomsen, 2016). Compared to their counterparts in developed countries SMEs in developing countries are observed to experience less eco-consumer pressure. They also tend to be more difficult to regulate due to higher levels of informality in the sector, with many running unregistered (Blackman et al, 2013; Hillary, 2000).

Citing the case of wine-makers in South Africa, Jamali et al. (2017) note that SMEs in developing countries do not engage sustainability mainly because of formal regulatory pressures. Their low visibility, wide geographical dispersion, and government's limited capacity for local-level monitoring make regulation a less-prominent driver. Rather, SMEs' engagement in sustainable practices are mainly driven by owner-manager's disposition (Hillary, 2000; Murillo & Lozano, 2006) and influence of business networks (Aragón-Correa et al, 2008; Hillary, 2000; Jamali et al, 2017; Klewitz, 2017). These findings show that the national context is important in the discussion of sustainability support programmes for SMEs.

There is a growing call for research on SMEs and sustainability to segment SMEs and consider countries in their different geographical categories. Parker et al (2009) presents a systematic review of studies on SMEs and sustainability and observed that existing empirical studies are based on the UK, Australia, EU, US, Canada and a number of other developed countries. Conspicuously absent from the list are studies based on SMEs in developing countries. Although some studies have focused on developing countries (e.g. Oguntoye & Evans, 2017; Utting, 2002), they have offered only limited insights on this region. Available literature on sustainability in developing countries' SMEs have also been described as being too streamlined, focusing mainly on export-oriented enterprises (Lund-Thomsen, 2016). To support effective

policymaking, it is important for research to establish the national contexts of the SMEs (Revell & Rutherford, 2003).

Support programmes targeted at promoting sustainable industries in developing countries are often categorized under Goal 9. The SDGs provide an overarching framework for guiding developmental efforts and comprise 17 goals covering 230 indicators and 169 targets (UN, 2019). The 17 SDGs are:

GOAL 1: No Poverty

GOAL 2: Zero Hunger

GOAL 3: Good Health and Well-being

GOAL 4: Quality Education

GOAL 5: Gender Equality

GOAL 6: Clean Water and Sanitation

GOAL 7: Affordable and Clean Energy

GOAL 8: Decent Work and Economic Growth

GOAL 9: Industry, Innovation and Infrastructure

GOAL 10: Reduced Inequality

GOAL 11: Sustainable Cities and Communities

GOAL 12: Responsible Consumption and Production

GOAL 13: Climate Action

GOAL 14: Life Below Water

GOAL 15: Life on Land

GOAL 16: Peace and Justice Strong Institutions

GOAL 17: Partnerships to achieve the Goal

Evaluations of international support programmes promoting sustainability among SMEs in developing countries show mixed results (e.g. Luken et al, 2016; van Berkel, 2011) – there are evidences suggesting the impact of support programmes were positive or otherwise. For example, in evaluating USAID’s EP3 project, Gallup and Marcotte (2004) noted that the project succeeded in raising awareness of pollution prevention among participating SMEs, however it failed at developing close relationships with NGOs and government. The project lacked concrete institutional arrangement to sustain its impact post-implementation.

Van Berkel (2011) noted that international programmes to promote cleaner production in developing countries had limited impact as the programmes did not evolve quickly to meet the changing local needs. It has also been pointed out that evaluation studies of support programmes tend to be optimistic as authors are often involved with running the programme (Klewitz and Hansen, 2012). Muchie (2000) provides a critique of the cleaner production programme run jointly by UNEP and UNIDO in developing countries. The author identifies key achievements of the programme to include the introduction of clear definitions, methodology and technique for cleaner production. However, they also note the challenge of institutional disorientation as the programme had not established adequate integration with local innovation, industrial and policy systems.

2.3.1 Critiquing the literature on international support programmes

A first observation from section 2.3 is the relative paucity of literature on international support programmes for SMEs in developing countries. Relative to the general literature on SMEs and sustainability, publications focusing on support programmes in developing countries constitute only a minimal percentage. Second, the literature on international support programmes offers limited insights on intermediaries. Studies make recommendations on how the programmes can be improved, for example Luken et al (2016) and van Berkel (2011) suggest stakeholders need to forge stronger ties with industries while Lund-Thomsen et al (2016) emphasize the need for programmes to adopt a cluster approach when engaging SMEs. However, these studies do not make clear-cut reference to intermediaries.

The literature implicitly recognize the intermediary as a key stakeholder involved with programme delivery and largely responsible for programme success. However, their findings or recommendations tend to be more focused on “stakeholders” in general or the programme as a whole, and not the intermediary in particular. Third, the theoretical significance of studies on international sustainability support programmes for SMEs is limited (Meath et al, 2016; Klewicz et al, 2014). The most significant theoretical contributions tend to focus on drivers and barriers to sustainability adoption by SMEs. Applicable theories from established disciplines such as stakeholder theory, network theory are not invoked. With the exception of a few

studies which have invoked theories such as environmental psychology and technology diffusion theories (van Berkel, 2007) other literature offer minimal reference to useful theories which could help understand the intermediary.

2.4 Intermediaries and the SME Network

There is increasing recognition of networks in the field of SME and sustainability (Paquin & Howard-Grenville, 2009; Roome, 2001). A generic but useful definition of SME network is provided by Blundel & Smith (2001):

A complex pattern of formal and informal linkages between individuals, businesses and other organisations such as government and voluntary agencies

The networking behaviour of SMEs has been discussed in the literature. In terms of the rationale, it is observed that SME networking is often associated with innovation and growth (Gibb, 1997; Macpherson & Holt, 2007; Pittaway et al, 2004). SMEs organize in networks for such purposes as learning (Gibb, 1997; Macpherson & Holt, 2007) and collective efficiency (Schmitz, 1995). Networks provide SMEs with a range of resources including information advice, and access to complementary competencies, technologies and markets (Macpherson & Holt, 2007; Pittaway et al, 2004).

Through networks, SMEs acquire sustainability-related knowledge from multiple sources most notably trade associations and suppliers (Roy & Thérin, 2008). In terms of the networking process, it is observed that SMEs benefit most when involved with a heterogeneous range of networks – including business, policy, knowledge and innovation networks (Macpherson & Holt, 2007). Distinctions have been drawn between these different types of SME networks based on their purpose (Klewitz et al, 2012; Wassmer, 2014). Although networks have been widely considered to provide strategic advantages to SMEs, they could also have detrimental effects through fostering anti-competitive behaviour (Macpherson & Holt, 2007; Pittaway et al, 2004).

A thorough understanding of SMEs network behaviour is critical in the design and delivery of government interventions (Battaglia et al, 2010; Char-lee et al,

2016; Halila, 2007; Klewitz et al, 2012; von Malmborg, 2007). This not only improves cost-effectiveness of the interventions, but also harnesses the natural preference of SMEs for network-based engagement (Battaglia et al, 2010; Collins et al, 2007; Cooke & Wills, 1999; Klewitz, 2017; Romijn, 2001).

2.4.1 Intermediaries

Intermediaries are a prominent member of SME networks. They service the collective interest of members of the SME network and can have a range of roles depending on the context. An intermediary may be defined as

“An organization or body that acts as an agent or broker in any aspect of the innovation process between two or more parties. Such intermediary activities include: helping to provide information about potential collaborators; brokering a transaction between two or more parties; acting as a mediator, or go-between, bodies or organizations that are already collaborating; and helping find advice, funding and support for the innovation outcomes of such collaborations” (Howells, 2006)

Figure 2.8 shows four categories of intermediaries – public, non-profit, semi-public, and private intermediaries with examples. Examples of intermediaries include trade associations, universities, NGOs, local authorities, chambers of commerce, research institutes and specialists (Howells, 2006; Pittaway et al, 2004).



Figure 2.8: Four intermediary categories (Adapted from Hansen & Klewitz, 2012)

Intermediary roles can be played by a range of organizations connected to the SME. From the economic theory standpoint, intermediaries are considered a tool for addressing information failures which is often a key challenge of SME development (Curran & Storey, 2002).

While delivering information services to SMEs, intermediaries often experience tensions based on peculiarities of their financing mechanisms and governance structures (Klerkx & Leeuwis, 2008). Such tensions are found between maintaining neutrality, generating revenues, and competing functions. Also, intermediaries operate between extreme contexts. They could be connecting a well-formulated policy framework with the most proactive local sustainability-oriented SME in some instances, while the reverse could be the case in other instances. Intermediaries have also been described using different terminologies in the literature including, network partners, bridgers, third parties, facilitators and legitimisers, and service providers (Curran & Blackburn, 1994; Hansen & Klewitz, 2012; Hillary, 2000; Howells, 2006; Tunnessen, 2000).

Figure 2.9 illustrates three high-level functions of the intermediary. Different frameworks have been developed to define the functions of intermediaries in SME sustainability networks. At the high-level, Hillary (2000) identifies three functions of intermediaries:

- Will-influencing function
- Supporting function
- Repressive function

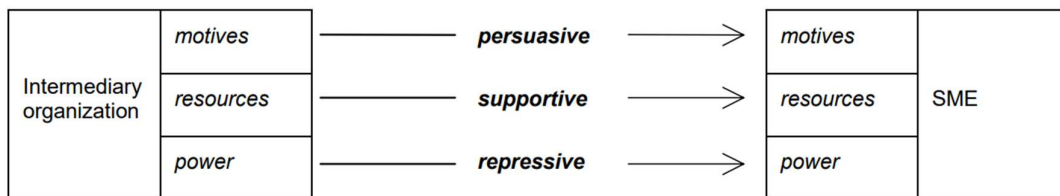


Figure 2.9: The network functions between intermediaries and SMEs (Source: Hillary, 2000)

The intermediary plays a persuasive function when it advocates the values of a new approach to business. Awareness-raising, advocacy and campaigns are examples of persuasive activities. Supporting function is provided through tailored advisory services, financing and training. Intermediaries may also play repressive function, such as environmental regulatory agencies or their affiliates.

At the operational level, Klewitz et al (2012) using the typology of intermediary roles developed in Howells (2006), elaborated on the supporting functions of intermediaries in SME sustainability networks:

- Foresight, diagnostic and scanning/information processing
- Knowledge processing, gathering and combination
- Gatekeeping and brokering
- Testing, validating and training
- Accreditation and standards
- Regulation and arbitration
- Intellectual property
- Commercialization
- Assessment and evaluation

A few empirical studies have attempted to further elaborate on the supporting roles played by intermediary organizations in specific networks (e.g. Bianchi & Noci, 1998; von Malmborg, 2004). In SME sustainability networks, Bianchi & Noci (1998) describes implicit and explicit support roles which include

- Being an aggregation pole for SMEs in the same industry, location or other commonalities
- Providing resources through training and creation of green skills
- Providing information before, during and after implementation

It has also been pointed out that in supporting SMEs for sustainability, it is often necessary for intermediaries to work in partnership as they are individually unable to provide adequate support (Klewitz et al, 2012; von Malmborg, 2007). Partnerships also help to reduce duplication of efforts while ensuring complementarities between intermediaries. The role of intermediary ownership in terms of public or private ownership is identified to influence the effectiveness of the intermediary (Kivimaa,

2014). This is based on the assumption that for private intermediaries their mandate may be diluted by their focus on profit-making. SMEs tend to prefer intermediaries with which they have an existing relationship and their peers (Hillary, 2000; Jenkins, 2004; Parker et al, 2009)

Research interest in intermediaries has been growing steadily due to the critical role they play in delivering sustainability information support programmes (Klewitz et al, 2012; Frijns & van Vliet, 1999; O’Keeffe, 2016; European Commission, 2007; Frey & Iraldo, 2008; Camisón, 2008; Kanda, 2014). There are indications that SMEs’ limited adoption of sustainability could be associated with their perception of intermediaries as ineffective and inconsistent (Bichard, 2000; O’Keeffe, 2016). This makes it compelling to focus research on improving understanding the intermediaries. Ex-post evaluations of information support programmes have provided useful insights. However, these insights are limited as they mainly help to identify misappropriation of funds but cannot tell if real value was gained from the programme or whether the intermediaries involved performed effectively (Bichard, 2000).

Given the intermediary’s central role, Brusati et al (2016) concludes that their activities “need to be systematically reviewed, supported and sustained over time”. A range of important observations have been made about ISP intermediaries. Brusati et al (2016) for example points out that membership-based organizations such as trade associations and unions are often ineffective in delivering information support programmes. In developing countries Frijns & van Vliet (1999) highlight how some SMEs might avoid membership due to unjustifiable cost-benefits. This thus limits the reliability of such organizations in delivering the ISPs. Another important observation pertains to how the intermediaries engage the SMEs. Provision of standalone information materials – toolkits, guide-books, web-resources – to SMEs has often been found ineffective. However, when this is accompanied by various levels of “handholding” by a service provider effectiveness is significantly improved (Freidman & Miles, 2002).

A common framework for studying intermediaries in the delivery of sustainability ISP to SMEs is the intermediary framework offered by innovation literature (Howells, 2006; Klerkx & Leeuwis, 2008; Kivimaa, 2014; Klewitz et al, 2012). From the innovation lens, an intermediary can be described as “an organization or body that

acts as an agent or broker in any aspect of the innovation process between two or more parties” (Howells, 2006 p.172). Examples of studies using this framework include Klewitz et al (2012) and Brusati et al (2016). The intermediation role includes foresight & information scanning/processing; gatekeeping & brokering, and knowledge processing, gathering, and combination (Howells, 2006; Roome, 2001). Intermediaries facilitate communication between the SMES and communities (Arrighetti & Serravalli, 1999; Dei Ottati, 2002; Visser and Atzema, 2008). Also, intermediaries promote shared strategies for addressing collective challenges of the SMEs in sustainability (Montini & Zoboli, 2004). The intermediary’s role often involves being a partner, a leader or expert (Holt et al, 2000).

2.4.2 Critiquing the literature on Intermediaries and the SME network

Majority of the literature on intermediaries have emerged from innovation studies and enterprise policy. Most literature tend to focus on the roles played by intermediaries. The term “service provider” or “service partner” is used to describe the intermediary in some cases. Beyond identifying the role of the service provider however, there are limited insights from the literature. Howells (2006) is a significant contribution to the literature on intermediaries. The highly-cited publication explores the key roles played by intermediaries in innovation systems. The author identifies twelve key roles. Subsequent studies citing this work however do not explore the concept of effectiveness. The ability of an intermediary to play its role effectively in the innovation system is under-explored. The literature on intermediaries does not exclusively focus on sustainability support programmes nor on developing countries. This limits the insights available from this field in addressing the current research question.

A counter-argument to the critique on the literature on intermediaries is that intermediary performance or effectiveness takes on a binary value, i.e. intermediaries are either effective or not depending on whether they are playing the roles identified in the literature or not. However, this argument is contestable as there is the possibility for intermediaries to engage SMEs, i.e. play the roles, but be ineffective. This is pointed out in Hillary (2004). Intermediaries may for example provide advisory services (an equivalent of “knowledge processing” using Howell’s framework) but use terminologies inconsistent with those of their SME client leading to confusion and reduced effectiveness (Hillary, 2004). This indicates that the intermediary

performance may not be an outright zero – since they are at least playing their role – and may not equally be 100 percent – since issues may arise that lower their effectiveness. Intermediary performance needs to be treated as a continuous variable whose value may not be derived from a binary assumption about their roles.

2.5 Relevant Theoretical Frameworks

Three theoretical frameworks are considered most relevant to the current study of intermediary performance – network theory, stakeholder theory and organizational performance theory. A range of other theories may be considered relevant including innovation systems theory and club theory. However there are no clear indications from the literature to suggest that these theories may offer better insights on intermediary performance than the selected three. The three theories are reviewed next.

2.5.1 Network Theory

The concept of intermediaries is strongly associated with networks. The term intermediary implicitly connotes the presence of other actors between which the intermediary acts as a link or broker. Although network theories were first popularized by sociologists in their analysis of social systems, variants of the theories now abound across disciplines (Brass et al, 2004; Provan et al, 2007). As noted by Rowley (2007), network theory is often used in extending other theories giving rise to a variety of concepts including innovation network, inter-organizational network, policy network and public service delivery network.

The most relevant to the current study are network theories in the context of public service delivery. Notable works in this field include Brass et al. (2004), Provan & Milward (1995) and Agranoff & McGuire (2001). Network theories are relevant in the current study for a number of reasons. First, they recognize the intermediary as a unique entity with specific roles different from other network members. In the case of support programmes, network theories enable a distinction to be made between the support service provider, i.e. the intermediary, and the receivers, i.e. SMEs. Second is that they have been widely applied both implicitly and explicitly in the study of SMEs and sustainability (e.g. Collins et al, 2007; Halila, 2007; Hillary, 2000; Klewitz, 2017). Thirdly, network theories offer a means to understand the relationship between the

intermediary's characteristics (e.g. degree of centrality, degree of in-betweenness) and network-level outcomes (e.g. level of adoption of sustainability practices among participating SMEs). This is particularly useful as the current study aims to understand what factors determine the intermediary's performance.

2.5.2 Stakeholder Theory

Stakeholder theory is a relevant albeit not critical theoretical lens for the current study. The literature on SME & sustainability shows there are a number of key stakeholders who influence sustainability adoption. These include customers, regulators and employees (Gadenne et al, 2009; Hillary, 2000, 2004; Nejati et al, 2014). Stakeholder theory helps to understand the relationship between the SME and these stakeholders. It has been observed for example, that SMEs experience lower pressure from NGOs, activist organizations, and similar stakeholders than their larger counterparts (Brammer et al, 2012; Hillary, 2004). In addition, SMEs experience varying levels of pressure from these stakeholders – an observation that explains why SMEs differ from each other in their sustainability disposition (Gadenne et al, 2009).

In spite of stakeholder theory's relevance, however it offers limited applicability in the current study of intermediaries. Stakeholder theory tends to rely on the assumption that the stakeholder wields a considerable level of power, resources, or legitimacy in relation to the focus firm (Freeman et al, 2010; Friedman & Miles, 2006). This assumption is not always true for intermediaries. Intermediaries mainly deliver their services on behalf of government or other programme sponsors. They mainly operate as agencies of the influential stakeholder operating strictly by the mandate they are charged with. This limits how much influence they could wield over the SMEs, thus making it challenging to study intermediaries through the lens of stakeholder theory.

Stakeholder theory tends to be situated within the firm's perspective (Freeman et al, 2010; Friedman & Miles, 2006). It helps to understand how a firm identifies and manages its relationship with internal and external influencers. This hardly offers any significant utility when studying the performance of an external organization, i.e. the intermediary.

2.5.3 Organizational Performance Theory

In the current study of intermediary's performance, the theory of organizational performance is central. From roots in the twentieth-century debates on organizational

effectiveness, organizational performance theory emerged as a formalized methodical approach to characterising effectiveness (Rainey, 2014; Talbot, 2010). Some early concepts of organizational performance were systemic and included constructs which were difficult to operationalize. The theory however, soon evolved into narrower more-specific fragments as researchers tailored it to suit various disciplinary objectives (Rainey, 2014). Organizational performance has been applied across business operations (Neely, 2007), public sector agencies and non-profits (Rainey, 2014; Talbot, 2010). In the current study, organizational performance theory in the context of public agencies and non-profits are most crucial. More of this is discussed in the section 2.6.

2.5.4 Comparing Relevant Theoretical Frameworks

Table 2.9 compares the three theoretical frameworks considered in sections 2.5.1 to 2.5.3.

	Some Important Variables and Constructs	Limitations	Aspects of Intermediary's Performance where framework is potentially applicable
Network Theory	Centrality Network effectiveness Broker relationships Governance Multiplexity	-Limited recognition for intermediary's internal characteristics, structures and processes	SME-oriented dimensions of performance or external dimensions of intermediary's performance
Stakeholder Theory	Influence strategies	-Focuses mainly an organization's view of its stakeholders -Offers limited view on performance factors	SME-oriented dimensions of performance or external dimensions of intermediary's performance
Organizational Performance Theory	Dimensions of performance Performance models Internal & external dimensions Enablers & Results	-Recognizes the organization's external environment, but only in a limited way. Places most emphasis on organization's	Intermediary-oriented dimensions or internal dimensions of performance

		internal processes and structures	
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Table 2.9: Comparing Theoretical Frameworks

Table 2.9 suggests that of all three theoretical frameworks organizational performance theory may be considered the most suitable starting point for the current study of intermediary performance. Network theory and organizational performance theory offer a broader range of variables than stakeholder theory. However organizational performance theory may be considered more applicable in the current study than the network theory, given that the latter mainly focuses on the external factors while the former focuses on both internal and external factors. In this study it is important to understand both the external and internal drivers of intermediary performance. Organizational performance theory may therefore be taken as a primary theory with which to explain findings of the current study. However, if/when the theory fails to offer sufficient explanation other relevant theories may be considered.

2.6 Organizational Performance in Public Service

A useful take-off-point in the study of intermediaries based on the comparison in table 2.9 is the literature on public organizational performance. SME sustainability support programmes are often public programmes. Although similar support may be provided as part of supply chain development programmes of large multinationals, the focus here is on programmes run by public institutions. These programmes are used as policy instruments either independently or in conjunction with other instruments, to drive adoption of sustainability tools and practices among SMEs. Funded by governments, international donors, and other public sponsors, the support programmes are delivered through intermediaries who must remain accountable to their public sponsors. These public-oriented characteristics of the support programmes, and in particular the intermediaries, make the literature on public organizational performance a suitable starting point.

2.6.1 The Public Vs Private Dichotomy

The literature on public organizational performance is often considered a subset or an extension of the general organizational performance literature (Rainey, 2014; Talbot, 2010). Public organizations began to attract special attention among organizational

performance scholars as the wave of policy reforms on public performance improvement spread throughout the world (Rainey, 2014). Experts in the organizational performance field were called upon to provide advice to governments on how to implement their performance improvement agenda. More than ever, this process led to a concerted effort to recognize public organizations as a distinct domain of organizational performance study.

Until date, debates exist about whether public organizations warrant separate theoretical consideration. These debates arise due to a perceived false dichotomy between public and private organizations (Rainey, 2014). For example, prominent organizational performance theorists including Herbert Simon, James Thompson, and Max Weber argued that the pervasive view of public organizations as large bureaucratic entities with huge inefficiencies compared to their private counterparts which are agile and efficient, is highly simplistic and mostly incorrect (Blau and Scott, 1962; Bozeman, 1987; Murray, 1975; Scott, 2003; Simon, 1995, 1998; Simon et al, 1950).

Empirical studies comparing organizations based on structures, processes, technology and a number of other parameters also found that public and private organizations have many more similarities than differences (Haas, Hall, and Johnson, 1966; Pugh, Hickson, and Hinings, 1969). The growing diversity of organizational forms, as well as the widespread instances of collaboration across sectors, are other reasons for rejecting the dichotomy (Borzaga and Defourny, 2004; Musolf and Siedman, 1980; Seidman, 1983; Walsh, 1978; Barzelay, 2001; Ferlie, Pettigrew, Ashburner, and Fitzgerald, 1996; Kettl, 1993, 2002; Provan and Milward, 1995; Rainey, 2014; Talbot, 2010).

While a public-private dichotomy might be difficult to resolve, there are yet credible arguments to justify a theory of public organizational performance. One of such arguments is that public organizations are fundamentally different in their *raison d'être*. From an economic perspective, the purpose of public organizations is to address problems which the market cannot or would not handle (Downs, 1967; Lindholm, 1977). This includes the delivery of public-goods; addressing problems of monopolies, income inequality & market externalities; as well as providing services which are too risky or too expensive for the private sector.

Asides economic or market-based rationale of public organizations, there are also the political rationales: maintaining law and justice, individual rights, social security, etc. These are services not exchanged on economic markets but are justified on the basis of social values, public interest, and the demands of political groups (Rainey, 2014). Another string of argument justifying a theory of public organizational performance lies in the empirical studies.

Empirical studies have shown that there are clear differences between organizational performance in the public and private domains (Kalleberg, Knoke, and Marsden, 2001; Kalleberg, Knoke, Marsden, and Spaeth, 1996). These studies adopt a range of methods including self-reflection on personal experiences, analysis of testimonials from managers and executives who have worked across both sectors, as well as analysis of differences in employee motivation – a factor commonly associated with organizational performance (Dahl and Lindblom, 1953; Downs, 1967; Wilson, 1989; Blumenthal, 1983; Hunt, 1999; Rumsfeld, 1983; Weiss, 1983). Although individual arguments in favour of a theory of public organizational performance might be limited in some way, if considered together they are formidable (Rainey, 2014).

2.6.2 Theoretical Influences and the Evolution of Organizational Performance

Organizational performance theory has evolved considerably since its early days of the 40's. The evolution began with the organizational effectiveness movement (1945 to early 1980s). This movement adopted a highly positivist quantitative approach to defining organizational performance, often using a single quantitative variable such as profit as the measure of performance (Talbot, 2010). A quality and cultural management movement emerged in the early 1980s, enhanced by seminal publications such as Peters and Waterman (1982). This movement emphasized key qualitative characteristics of high-performing organizations, thus leading many organizations into formulating vision statements, mission statements, culture, and value statements. By the 90's, a new quantitative movement had emerged with a view to providing a more quantitative approach to defining non-financial performance. Studies including Eccles (1991) and Neely (1998) heralded this era.

In what it calls a "cook's tour" of theories that have shaped the understanding of organizational performance, Talbot (2010) identified a wide range of theories. These

range from theories in fields of anthropology, economics, political science, sociology, and to those from social psychology. Other theories identified to have had a strong influence on organizational performance are institutional theory, resource-dependence or resource-based theories, and complexity theories. These theories influenced organizational performance in a variety of ways. One way was the increasing recognition of internal or process dimensions of performance such as employee motivation, in addition to the traditional output-based dimensions (Rainey, 2014). Another example is the recognition of factors from the organization's environment (Hood and Dunsire, 1981; Meyer, 1979; Perry and Kraemer, 1983; Pitt and Smith, 1981; Wamsley and Zald, 1973; Warwick, 1975)

Throughout the evolution of organizational performance, elements used in characterizing performance – either as determinants or as measures – often varied between quantitative and qualitative, unidimensional and multidimensional, and were often called by a variety of names including effectiveness, excellence, productivity, and performance. Overall the evolution of organizational performance can be summed up as episodes of appearance, disappearance, and reappearance of elements of performance, often in different combinations and under different labels, depending on the model (Porter and Tanner 2004). Table 2.10 highlights some of the most enduring models of organizational performance used in the public domain.

Performance Model	Place of Origin	Originators	Year
"Three Pillars" Model	Canada	Ingrestrup & Crockall	1998
Management Accountability Framework	Canada	Treasury Board	
PMG	Chile	Chile Finance Ministry	
Common Assessment Framework	European Union	EU, Speyer Institute, EFQM	
European Public Service Awards	Germany	Bertlesmann Foundation	
The Municipal Compass	Sweden	Association of Local Authorities and Regions	2006
Unlocking Public Value	UK	Accenture (Cole and Parston)	
Comprehensive Performance Assessment	UK	Audit Commission	1998
Public Service Excellence Model	UK	Talbot	

Public Benefit Model	UK	New Economics Foundation	2007
Strategic Process Model	UK	Joyce	2000
"Significance" Model	USA	Denhardt	1993
"Logic of Governance" Model	USA	Lynn et al	2000
"Three performance ethics" Model	USA	Fried	1976
Government Performance Framework	USA	Ingraham et al.	
Programme Analysis and Reporting Tool (PART)	USA	Office of Management and Budget	
Public Value Model and Scorecard	USA	Moore	1995/ 2003
Strategy Change Cycle	USA	Bryson	2004
Dolphin Assessment Process (Linked to EFQM Excellence Model)	UK	Centre for Management and Policy Studies (now called the National School of Government)	2001

Table 2.10: Examples of Public Organizational Performance Models (Source: Talbot, 2010)

2.6.3 Public Performance Management Framework

Examples of relevant performance frameworks in the study of public organizations have been highlighted in Table 2.11. After reviewing the strengths, limitations, differences and commonalities between all major frameworks, Talbot (2010) highlighted a list of the most important performance dimensions:

Common Dimensions of Performance
<ul style="list-style-type: none"> • Values (endogenous and exogenous) • Aim, mission, goals, or mandate • Legitimacy, trust, responsiveness, sustainability • Governance arrangements (including accountability and democratic control) • Strategy, Integration, and alignment • Structures • Partnerships, joined-up working, networks • Leadership • Resource management (including economy and efficiency) • People management (including equality and diversity) • Process management • Customer/service focus and responsiveness • Risk management • Innovation and learning • Service delivery, outputs, quality of outputs

- Social impact, outcomes, results

Table 2.11: Common Public Organizational Performance Dimensions (Source: Talbot, 2010)

This is similar to earlier attempts during the organizational effectiveness era to create a comprehensive list of performance dimensions (e.g. Campbell, 1977; Cameron, 1978; and Quinn & Rohrbaugh, 1983). By grouping elements of his list into inputs and results, Talbot proposed the framework depicted in figure 2.10 as a useful model for studying performance of public organizations.

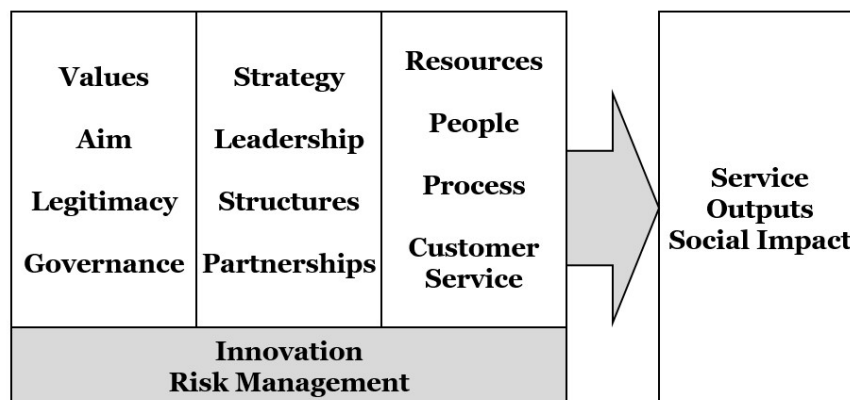


Figure 2.10: Talbot's Performance Framework – a useful framework for the study of intermediaries

An important value possessed by this framework is the multidimensionality of performance. This means multiple perspectives of the organization can be accounted for simultaneously. Although multidimensional performance frameworks are often criticised for problems of indicator overload, and problems of weighting and aggregation, they have remained prominent in the study of public organizations (Rainey, 2014; Talbot, 2010). The goals of public organizations, e.g. "defend national security" or "improve bilateral relationships", can hardly be described using any single objective measure. Unlike private businesses, where simple constructs such as *profit* can be adopted as a measure of performance, public organizations are less amenable to such constructs. Hence, adopting a multidimensional approach is important.

Talbot's framework also provides clarity on what constitutes drivers. It is clear from the organizational performance literature that the issue of drivers can be problematic

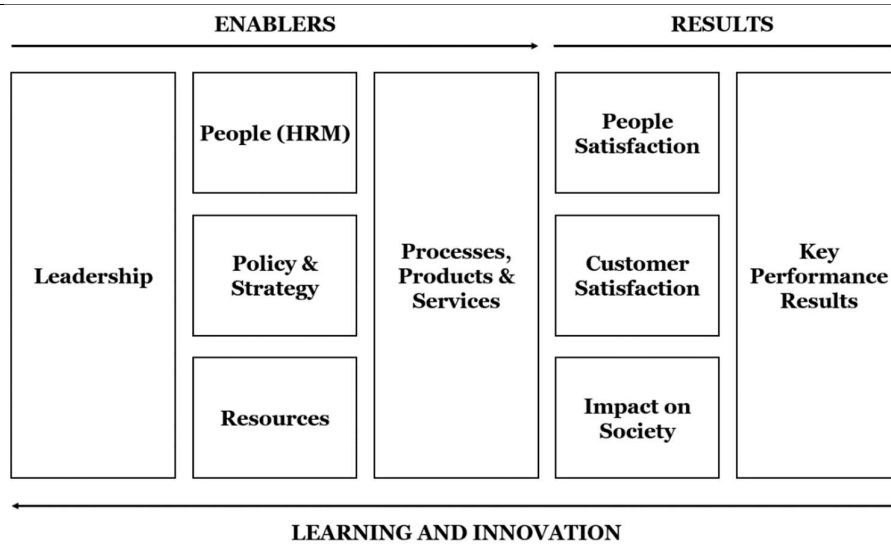
(Rainey, 2014; Talbot, 2010). Establishing simple causal relationships between an organizational variable and performance is difficult if not impossible since performance is hardly a unidimensional objective construct. In addition, the direction of causality is often unclear as drivers and measures of performance appear to influence each other simultaneously. Given this challenge, most frameworks only highlight dimensions or elements commonly associated with performance rather than drivers.

Some frameworks, most notably the EFQM, PERFORMANCE PRISM, and Baldrige, have sought to address the difficulty by designating certain dimensions of performance as enablers and some other dimensions as results (Talbot, 2010). These frameworks posit that increasing the enablers-dimension of performance in the present time would lead to an increase in results-dimensions in the future. While this approach has its limitations, it is useful. It recognizes the fact that performance dimensions can both be measures of performance, i.e. the dependent variable, and be measures of performance, i.e. the independent variable, at the same time. By introducing the concept of lag between cause and effect, these frameworks allow dimensions to be split into drivers and results.

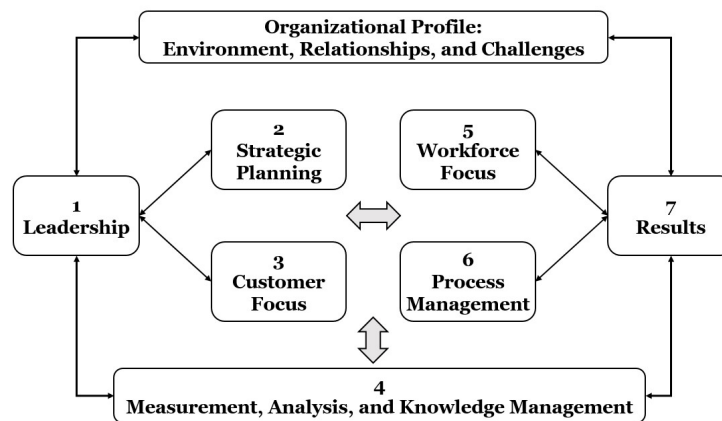
Talbot's framework has its limitations. Similar to most existing performance frameworks where each one lacks one or more critical dimensions which might be present in a different framework, Talbot's framework equally falls short. However, this observation is not unexpected since performance frameworks are normally constructed within disciplinary boundaries (Neely, 2007). To have a level of practical applicability, frameworks need to concentrate on a given aspect of the organization where the specific disciplinary interest lies. This is the approach adopted in Talbot's framework. The model is framed within the public organizational performance discipline, thereby eliminating dimensions relating to profitability, growth, and other similar dimensions which might be of business interest. Another limitation is the lack of clarity between what is considered a driver or enablers of performance and the measure or results of performance. Although challenging to construct, frameworks which distinguish between drivers or enablers and the measures or results of performance are more easily amenable to the current study of drivers.

For the current study, the Talbot framework is considered appropriate. Like most existing frameworks, it takes a multidimensional view of performance. Illustrated in

figure 2.10, this framework integrates all key dimensions of existing frameworks and draws a clear distinction between enablers/drivers and results of performance. However, the juxtaposition of variables within the drivers segment does not imply any linkages or inter-relationships between the drivers. This is the case with many other diagrammatic representations of performance frameworks (Talbot, 2010). The framework maintains the flexibility of existing variants in that it accommodates both qualitative and quantitative values and allows user-defined weighting and aggregation methods.



a: the EFQM Performance Model



b: the Baldrige Model

Figure 2.11: Alternatives to the Talbot Framework

Compared to two similar frameworks – the EFQM and the Baldrige (Figure 2.11) – Talbot's model is considered more appropriate for the current study. The EFQM appears simpler with only nine dimensions which are split evenly between drivers on the left- and results on the right-hand side. The EFQM has gained widespread adoption since its introduction in the 80's and has since been modified and adapted severally to suit various applications (Talbot, 2010). However, its elaborate attention to the results-dimensions of performance makes it less suitable in the current study. The most accessible data in this study are those based on the left-hand dimensions of the EFQM model, i.e. the drivers dimensions; data on the results-dimensions – including client satisfaction, and impact on society are not accessible.

With the Talbot framework, data access is less challenging making it more suitable. A second framework – the Baldrige Excellence Awards – from the US has a long-standing reputation for widespread adoption since its introduction in the 80s. Although primarily aimed at private sector organizations, this framework has been equally adopted in the public sector. However, unlike the Talbot framework, the Baldrige does not offer a simple relationship between the dimensions of organizational performance. With arrows pointing in both directions between pairs of boxes, this framework indicates interdependence between elements. Talbot's framework may be considered applicable in simpler high-level or conceptual scenarios while the Baldrige provides applicability where finer details are required.

2.6.4 Limitations of the Public Organizational Performance Theory

Public organizational performance theory, like most other organizational theories, has been criticized for its limitations. Talbot (2010) offered a useful review of the key limitations. First, a widely accepted definition of public organizational performance does not exist leading to a multiplicity and often inundating array of conceptual frameworks (Daft, 2013; Hall & Tolbert, 2004; Rainey, 2014). This conceptualization problem arises from ontological debates – is organizational performance an objective reality or is it merely a social construct; epistemological debates – how can we know what performance is; and methodological debates – how can we measure performance? These debates have perennially proved difficult to resolve (Talbot, 2010).

A widely used approach among researchers is the adoption of a goal-based performance definition, i.e. performance is defined as the extent to which an organization has achieved a given goal (Rainey, 2014; Talbot, 2010). While the goal-based view might appear logical and pragmatic, yet it raises fundamental concerns about what a goal is. Goals are observed to exist as multiple- dynamic- mutually-dependent- and often-conflicting-sets (Rainey, 2014), thus an increase of performance in one goal-dimension could be accompanied by a decrease of performance in another. A classic example is the tension between organizations' short- and long-term goals. In addition, public organizations are charged with rather vague goals such as "provide national security", or "forge stronger bilateral relationships", thus, further exacerbating the problems with goals-based approach (Rainey, 2014; Lowi, 1979; Seidman and Gilmour, 1986). Should public organizational performance therefore be constructed based on goals despite these limitations?

The performance conceptualization problem is commonly resolved within disciplinary boundaries. As pointed out in Neely (2007), each discipline where organizational performance is studied deals with the problem by establishing a streamlined discipline-specific view of performance. In their book, Neely (2007) highlights concepts of performance in a range of disciplines including accounting, operations management, marketing, and the public service. Although some scholars have attempted to provide a unifying framework across disciplines (e.g. Campbell, 1977, Neely, 2007; Quin & Rohrbaugh, 1983; Talbot 2010), the resulting frameworks often risk a lack of pragmatic value. Discipline-based resolution remains the dominant approach for addressing the conceptualization problem. Relevant frameworks within the public service discipline are discussed in the section 2.6.3.

With regard to the current research question, it suffices to begin by conceiving intermediary performance as a case of organizational performance in the delivery of a public service. However, the existing literature on public organizational performance makes no special recognition for intermediaries delivering sustainability support programmes SMEs. There are also limited insights on intermediary performance in the developing country context. As pointed out by Talbot (2010) the dimensions of organizational performance may vary from organization to organization and from context to context. Public organizations are charged with different mandates with the consequence of having different critical factors influencing their performance. It is

important to study the intermediaries of the current research context, to better understand the factors that influence their performance of the identified roles.

2.7 Key Learning: Research Gap

This chapter has explored research areas most closely related to the current topic. Key learning may be summarized as follows:

- Intermediaries are referred to in the literature on SME and sustainability. However, this is done mostly implicitly
- Existing studies tend to focus on either the SME or on the support programme in general, but not exclusively on the intermediary.
- The literature on intermediaries and SME network provide insights on the roles played by intermediaries. However, there are limited insights on what factors determine whether an intermediary may perform these roles effectively.
- International SME support programmes – a branch of international development literature – offers case study insights on programmes executed in developing countries including challenges and success factors as well as recommendations to key stakeholders. However, this body of literature mainly provides is often high-level and donor-oriented programme evaluation with a tendency for success bias. They offer limited focus on the intermediaries.
- The literature on public organizational performance management may be considered applicable to intermediaries. However, the literature recognizes the specificity of each public organization and confirms that its generic theories may not apply in all public organizational contexts.

The listed points constitute a clear indication of a gap in the current understanding of intermediaries. In particular, there is little existing understanding of what factors drive performance in intermediaries delivering sustainability support programmes to SMEs in developing countries. The rest of this study seeks to fill the identified gap by addressing the research questions of Section 1.4

This chapter details the research paradigm, research design and research methods to be used in addressing the current question. Chapters 1 and 2 have provided an introduction to the topic as well as a review of relevant literature. This chapter takes the study forward by identifying suitable methodological frameworks. It concludes that the post-positivist paradigm provides a suitable philosophical framework. The multiple case study approach, involving a combination of qualitative data collection and the thematic analysis technique, are considered appropriate for the study. The chapter ends with an examination of key methodological limitations.

3.1 Research Purpose

The purpose of this study is to improve understanding of the relationship between intermediary performance and the effectiveness of SME sustainability support programmes in developing countries. This study may best be considered as an exploratory study given that it is seeking new insights on intermediaries with respect to the drivers of their organizational performance. Other types of studies have been considered, for example studies seeking to explain causal relationships between variables (explanatory research), or studies seeking to describe a new phenomenon

Descriptive	Exploratory	Explanatory
<ul style="list-style-type: none"> • To portray an accurate profile of persons, events or situations • Requires extensive previous knowledge of the situation to be researched or described • May be qualitative and/or quantitative 	<ul style="list-style-type: none"> • To find out what is happening • To seek new insight • To ask new questions • To assess phenomena in a new light • Usually, but not necessarily qualitative 	<ul style="list-style-type: none"> • Seeks an explanation of a situation or problem, usually in the form of causal relationships • May be qualitative and/or quantitative

Table 3.1: Purposes of research. Source: Robson (1993)

(descriptive research). The key differences between all three key types of research goals are summarized in table 3.1. Unlike descriptive research which tries to provide an accurate image or profile of a phenomenon, the purpose of this study is to explore the concept of intermediary performance with a view to identifying key variables. Unlike the case of an explanatory research where the goal is to determine causal relationships, this study focuses mainly on identifying variables and hypothesising about them. Emerging hypotheses may then be researched further through subsequent study.

Exploratory studies offer a starting point for theory-building, are useful for identifying key variables and for hypothesizing relationships between variables (Schindler and Cooper, 2005. p9). In the current study, the variables being sought are those influencing the performance of intermediaries delivering SME sustainability support programmes. While extant literature has identified the critical role of the intermediaries, there has been limited attempt to understand their performance. In addition to identifying key variables, this study seeks to address a number of other research questions in a way that helps construct a new perspective on intermediary performance.

3.2 Research Paradigm

From the philosophical viewpoint a number of perspectives can be taken in constructing the paradigm for this study (Guba & Lincoln, 1994). Each philosophical paradigm varies from the other mainly in their ontological, epistemological and methodological assumptions. Ontology pertains to the nature of reality in terms of whether there is reality, whether it exists independent of the researcher, whether it is absolute or relative, etc. Epistemology relates to knowledge of reality, in terms of what can be known, how do we know, and how do we know that we know, etc. Methodology pertains to the manner of conducting the inquisition, in terms of the methods or techniques, the reliability of the methods, and the nature of data among others (Creswell, 2012). In the current study, the philosophical paradigms considered most relevant are: Positivism, Post-positivism, Critical Theory and Constructivism. The key assumptions made in each paradigm with respect to ontology, epistemology, and methodology are summed up in the Table 3.2.

Item	Positivism	Post-positivism	Critical theory	Constructivism
Ontology	Naïve realism – “real” reality but apprehendable	Critical realism – “real” reality but only imperfectly and probabilistically apprehendable	Historical realism – Virtual reality shaped by social, political, cultural, economic, ethnic, and gender values; crystallized over time	Relativism – local and specific constructed realities
Epistemology	Dualist/objectivist; findings true	Modified dualist/objectivist; critical tradition/community findings probably true	Transactional/s subjectivist; value-mediated findings	Transactional/s subjectivist; created findings
Methodology	Experimental/manipulative; verification of hypotheses; chiefly quantitative methods	Modified experimental/manipulative; critical multiplism; falsification of hypotheses; may include qualitative methods	Dialogic/dialectical	Hermeneutical/dialectical

Table 3.2: Relevant philosophical paradigms. Source: Guba & Lincoln (1994)

Distinctions between paradigms may not be as clear-cut as shown in the Table 3.2, rather research paradigms are better described as points on a continuum. Researchers are often found using philosophical frameworks which cut across traditional paradigms, because the boundaries of the traditional paradigms are blurred. The case is the same here: assumptions about the nature of the phenomenon being studied – intermediary performance – may not always perfectly fit one paradigm only. For example, it can be argued that the phenomenon might have various social, political, cultural, economic dimensions which are constantly evolving; hence critical theory which has a historical realism ontology could be considered appropriate. However,

while such fuzziness often persists between paradigm boundaries, assumptions made by researchers tend to be closer to one paradigm than the other. The strengths and limitations of each related paradigm are summarized with regard to the current study in Table 3.3.

	STRENGTH	WEAKNESS
POSITIVISM	Offers an opportunity to be objective about the phenomenon being studied. Conclusions are drawn exclusively from evidence. Conclusions from a positivist study (<i>this causes that</i>) are more amenable to direct generalization as contextual influences can be considered isolable.	Limited to phenomena that are amenable to direct sensory observation, and whose observed characteristics remain the same regardless of the context. Intermediary performance, however may not be directly observed not independent of context. Thus, positivism is not considered suitable.
POST-POSITIVISM	This paradigm admits the limitations inherent in our study of social phenomenon. Similar to positivist paradigm, its conclusions are evidence-based, however it recognises that human perceptions of reality are imperfect, and the conclusions we draw from findings are only probably true. This paradigm is particularly useful in the current case – where the phenomenon being studied may be described in different ways by persons taking part in the study. The conclusions to be drawn are only intended to strongly suggest what is true.	Post-positivism often leads to multiple possible conclusions while it offers limited guidance on which conclusion(s) to adopt The reduced ability to produce a definitive conclusion is not a significant problem because this study is mainly an exploratory study – its conclusions are subject to further confirmatory studies. In other words, the goal here is not to assert truth, but to suggest a likelihood of truth. Hence post-positivism remains a suitable research paradigm.

CRITICAL THEORY	This paradigm is helpful for its idea on how meanings are often as a result of social, political, cultural, and gender values; and that these are often evolving constantly. To some extent, findings from the current study might as well be amenable to this paradigm.	It places excess emphasis on the evolution, subjectivity, context-dependence, time-dependence, and transactional nature of observations. These however are not the key focus of the current study. Thus critical theory is not considered applicable
CONSTRUCTIVISM	Also sometimes called the interpretivist paradigm, this paradigm can help to explain the variations in perspectives of the people involved with the intended study, and equally support the process of galvanizing these perspectives into a common communal construct	Taking a constructivist approach in the current study may be self-limiting. The paradigm is mainly suitable for local and specific constructed realities. In the current study, the variables being sought may not necessarily be locally nor individually-constructed. Hence, constructivism is not considered appropriate

Table 3.3: Comparing philosophical paradigms in relation to the current study

The post-positivist paradigm is considered most appropriate for this study as it most closely reflects the philosophical assumptions being made in the study. A fundamental assumption of this study is that intermediary performance – the core focus – is a reality which exists independent of the researcher, i.e. it is an objective reality. However, human knowledge of this reality is subjective and imperfect. Therefore, the conclusions we can draw from studying intermediary performance are only probably true. A similar assumption is mirrored implicitly in related literature (e.g. Hillary, 2004; Parker et al, 2009; Klewitz, Zeyen and Hansen, 2012).

The key weakness of a post-positivist paradigm (Table 3.3) lies in its tendency to produce multiple competing conclusions without offering a clear set of criteria for choosing the most appropriate conclusion. However, the goal of this study is not to produce a definitive conclusion on the cause and effect of intermediary performance. Rather the goal is to explore and identify new insights on intermediary performance which may be subjected to further confirmatory study. For this purpose, adopting a post-positivist paradigm suffices.

3.3 Research Design

Research design has been described as the “overall strategy that you choose to integrate the different components of the study in a coherent and logical way, thereby, ensuring you will effectively address the research problem; it constitutes the blueprint for the collection, measurement, and analysis of data” (USC, 2016). Figure 3.1 shows the research design adopted in this study.

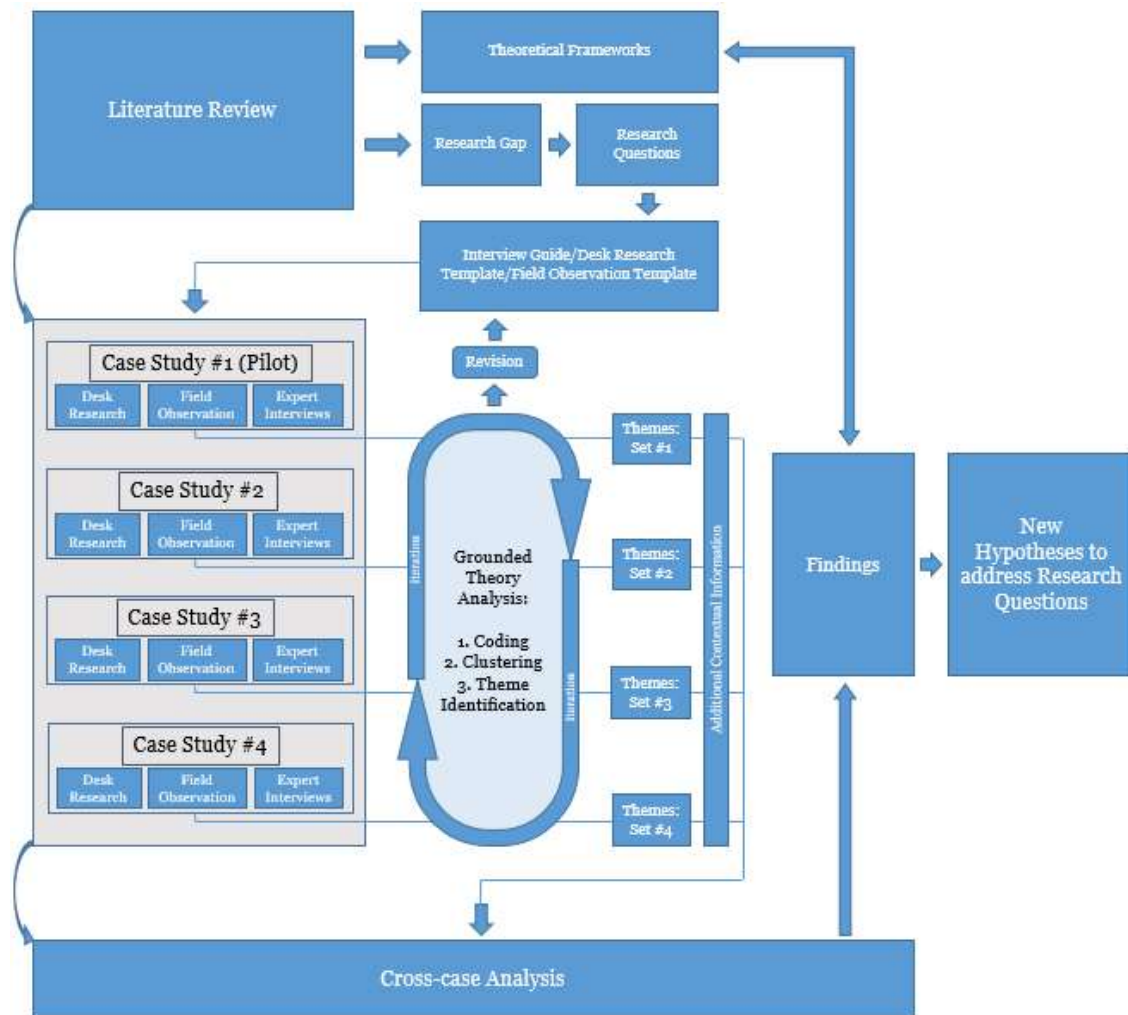


Figure 3.1 The Research Design

A variety of research designs may be considered in this study. The current research design is based on a grounded theory approach. A distinguishing feature of the approach is that it uses no preconceived theoretical frameworks in data collection.

Figure 3.1 illustrates the process by directly linking research question and data collection. Theoretical frameworks identified in the literature review are invoked mainly when interpreting research findings. The key advantage of the design lies in its ability to generate new substantive theory about a concept for which existing formal theories are limited. It has been established in Chapter 2 that the intermediary performance is a relatively underexplored topic to which the most relevant theoretical frameworks prove insufficient.

A key alternative to the grounded-theory based research design is the traditional hypothesis-led approach. The approach begins by identifying or defining a theoretical framework which forms the basis of data collection. This approach has the advantage of its ability to validate or refute existing theories. However, the approach is not considered suitable in the current study given that existing theoretical frameworks are limited (Chapter 2). For the current topic, a new substantive theory is sought to unravel the drivers of intermediary performance.

The research design adopted in this study (Figure 3.1) may be further understood by focusing on five key components – Goals, Conceptual Framework, Research Questions, Methods, Reliability – defined by Maxwell (2012).

1. Goals	Why is the study worth doing? What issues need to be clarified, and what practices need to be influenced?
2. Conceptual Framework	What are the current perspectives on what is going on in the settings, or people being studied? What theories, beliefs, and prior research findings will guide the study?
3. Research Questions	What, specifically, needs to be better understood about the settings or participants being studied? What is not known yet about these that need to be learnt?
4. Methods	What will the researcher actually do in conducting the study? What approaches and techniques will be used in collecting and analysing data?
5. Reliability	How might the results and conclusions be wrong? What are the plausible alternative interpretations and validity threats to these results and conclusions, and how will the researcher deal with these?

Table 3.4: Components of a Research Design. Adapted from Maxwell (2012, pp 4)

The key components of the research design based on Maxwell’s model are shown in Figure 3.2.

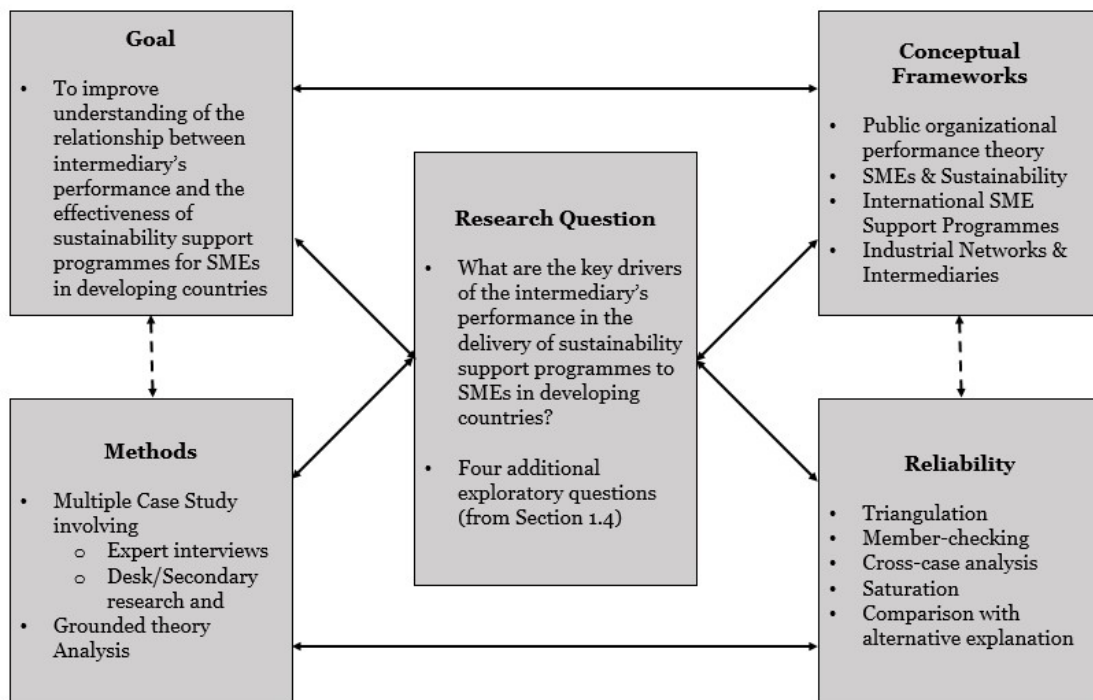


Figure 3.2: Components of research design based on Maxwell’s Framework

Figure 3.2 shows how components of research design in this study are interconnected. Solid arrow lines indicate strong mutual influence while broken lines represent partial influence. Central to the design is the research question. Figure 3.2 gives a snapshot of the design choices made in this study. Sections 3.4 to 3.9 provides further details on key research design choices.

3.4 Grounded Theory

Grounded Theory (GT) was formally introduced by sociologists Barney Glaser and Anselm Strauss in 1967 through their publication: *The Discovery of Grounded Theory* (Glaser and Strauss, 1967). GT may be described as:

“a general methodology of analysis linked with data collection that uses a systematically applied set of methods to generate an inductive theory about a substantive area.” (Glaser 1992)

Grounded theory is founded on the need to produce new theories about phenomena for which existing theories are unavailable, inappropriate or limited. GT highlights the concepts of substantive theory and formal theory – the key difference being that a formal theory operates at a higher level of abstraction from real data than a substantive theory (Glaser and Strauss, 1967; Locke, 2000). Substantive theories may inform the development, modification and validation of formal theories. GT research is primarily aimed at producing substantive theories (Glaser, 1978, 1992; Glaser and Strauss, 1967; Strauss, 1987).

Grounded theory is an inductive approach. Succinctly described in the original book (Glaser and Strauss, 1967, p.1), it involves the “discovery of theory from data.” It is often applied in qualitative research although proponents argue there is no restriction to its use in quantitative or mixed research (Glaser, 1978, 1992; Glaser and Strauss, 1967; Strauss, 1987; Strauss and Corbin, 1990).

With the growing use of the term “grounded theory” the meaning of this research approach has continued to evolve, often creating ambiguities. Suddaby (2006) authored a seminal text to address ambiguities associated with the term, Grounded Theory. The author highlights what grounded theory is not, based on analysis of several manuscripts produced by organizational and management researchers. Suddaby emphasizes the following six points [sic]: Grounded Theory ...

- is not an excuse to ignore the literature
- is not presentation of raw data
- is not theory testing, content analysis, or word count
- is not simply routine application of formulaic technique to data
- is not perfect
- is not easy
- is not an excuse for the absence of a methodology

Grounded theory shares key similarities with traditional approaches of qualitative research:

- GT research equally begins with a research question
- data comes from similar sources – interviews, documents, newspapers, letters and any source that may provide insights on the phenomenon being studied

- coding is done in a similar way as to traditional research approaches, i.e. using the guidelines in the standard qualitative research literature (Guba 1981; Miles and Huberman, 1984; Miles, Huberman and Saldana, 2014)

Key distinguishing features of GT include (1) its simultaneous process of data collection and analysis (2) the use of constant comparisons across every stage of its implementation (3) development of analytic categories from data and not from preconceived frameworks (4) sampling toward theory construction and not toward representativeness of the population (Charmaz, 2014 p. 7).

3.4.1 The Grounded Theory Process

Figure 3.2 illustrates the key stages of GT

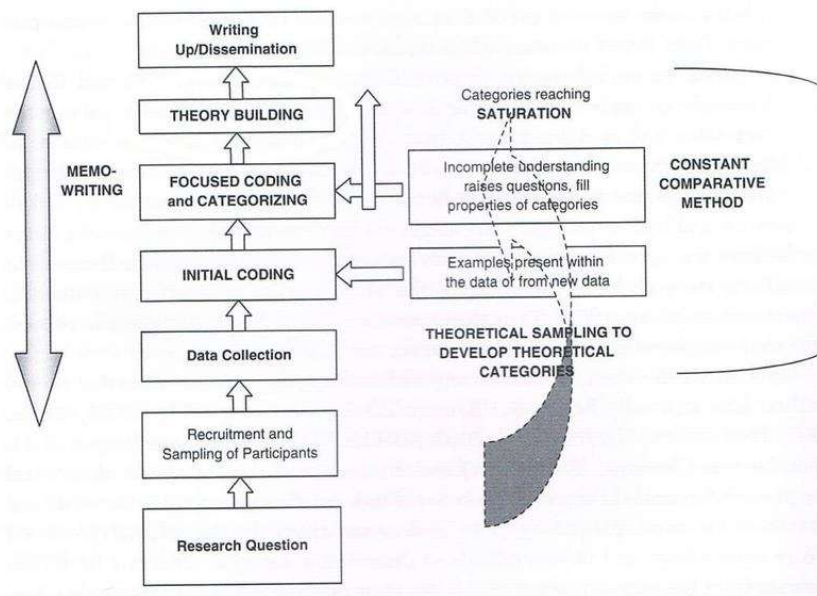


Figure 3.2 Process of Grounded Theory analysis (source: Charmaz, 2014)

Grounded theory begins with a research question similar to traditional research. However, care must be taken to ensure research question does not introduce preconceived theoretical assumptions to the data collection and analysis process (Strauss and Corbin, 1993 p37 - 40). GT requires researcher to initially approach the inquiry

with an open mind, i.e. with no preconceived theories. Charmaz and Henwood (2006: 241) puts it simply as:

“We gather data, compare them, remain open to all possible theoretical understandings of the data, and develop tentative interpretations about these data through our codes and nascent categories. Then we go back to the field and gather more data to check and refine our categories.”

3.4.2 Variations in GT

Glaser and Strauss – the two co-founders of GT later formed different independent views on the canons and procedures of their research approach. Key differences between Straussian and Classical (or Glaserian) GT lie in the mode for analysing intermediate hypotheses about relationships between categories. Whereas classical GT stresses constant comparison with data as the primary method (Glaser, 1992), the Straussian model introduces more rigid prescriptions for developing and testing intermediate hypotheses (Strauss and Corbin, 1990).

Straussian prescriptions are based on traditional hypothetico-deduction models which are strongly opposed by Glaser and other proponents of Classical Grounded Theory (Evans, 2013). Since the original authors of GT began to differ in their views, a range of alternative views of GT have emerged. This has created a variety of guidelines on GT as well as the misuse and abuse of the research approach. The GT process illustrated in Figure X may be used as is or with modifications depending on which GT variant is deemed most appropriate in a given context.

3.4.3 Application of GT in the current study

This study acknowledges the role of researcher’s reflexivity in the GT process. The list below reveals the overarching mental framework of the current author when reflecting on interview data and/or seeking additional data:

- WW – What Works when intermediaries seek to improve performance
- WDW – What Doesn’t Work when intermediaries seek to improve performance
- ATB – How the respondent believes the intermediary may improve performance, i.e. from A to B
- KTO – Key Trends and Opportunities in performance improvement
- KC – Key Challenges mitigating performance improvement

The above list does not represent preconceived categories or themes in the dataset. The list is not directly connected to specific interview questions. Rather it represents how the current author interpreted blocks of qualitative data gathered in the study, i.e. themes in this research emerge through clustering of ideas on what works, what doesn't work, etc. The importance of making the researcher's thought process explicit in qualitative research is highly emphasized in the literature (Charmaz, 2006).

This study does not adopt Straussian prescriptions on developing and testing hypotheses about the researcher's mental frameworks. Such prescriptions are considered inhibiting and antithetical to the essence of the grounded theory approach (Glaser, 1992). The researcher's freedom to apply creative mental frameworks in GT analysis is supported in the classical GT literature (Glaser, 1992; Glaser, 1978). It is described as theoretical coding (Charmaz, 2006). The mental framework defined through the list above is an instance of theoretical coding.

3.4.4 Limitations

Key limitation of GT lies in its original epistemological foundations. GT was conceived as a pure inductivist research approach in which case theory emerges entirely out of data, i.e. without preconceived frameworks. However, given that GT also relies on the researcher to interpret available data and to decide what new data to collect, the notion of having no preconceived framework becomes disputable. Dey (1999 p104) frames the challenge thus:

“Even if we accept the (doubtful) proposition that categories are discovered, what we discover will depend in some degree on what we are looking for – just as Columbus could hardly have ‘discovered’ America if he had not been looking for the ‘Indies’ in the first place.”

Strauss and Corbin (1990) in recognition of the implicit use of mental frameworks in GT research offered a set of guidelines for formally introducing such frameworks into GT research. However, their guidelines have been criticised for being rigidly prescriptive, supportive of a hypothetico-deductive approach, and ultimately undermining the essence of GT (Glaser, 1992).

This study has sought to address the key limitation of GT by combining the emphasis on a flexible inductive process from classical GT with the explicit recognition of

researcher's mental framework (section 3.4.3). This preserves transparency and helps contextualize research findings.

3.4.5 Alternatives to GT

Alternatives to grounded theory approach may be broadly categorized as traditional or hypothesis-driven deductive analysis. This requires studying a phenomenon from the lenses of existing theories: the researcher identifies or develops a theoretical framework out of existing literature and proceeds with data collection with the view to explaining the data using the framework. The challenge with traditional approach is that not all phenomena may be studied using existing theories (Glaser, 1978, 1992; Glaser and Strauss, 1967; Strauss, 1987; Strauss and Corbin, 1990). Existing theories may be unavailable, limited or inappropriate, thus the development of new theory.

It has been highlighted in Section 2.5 that the most relevant theories in the current research are formal theories such as network theories, stakeholder theories and organizational performance theories. These theories do not suffice in addressing the current research questions at a substantive level; hence the need to develop new substantive theory. The Grounded Theory approach helps to meet the need for a new theory. After applying GT in addressing the current research question, this study invokes relevant theories in discussing key findings [see Figure 3.1] (Suddaby, 2006).

The applicability of GT in organizational research is well-established in the literature (Martin & Turner, 1986). GT originally emerged from organizational studies. Glaser and Strauss developed the approach when researching American health institutions. Swanson and Holton (2005) provide a detailed examination of methods of inquiry used in studying organizations highlighting the critical role of the grounded theory approach. Locke (2000) highlights key applications of grounded theory in organizational management research. Hence, in the current study of intermediary – a type of organization – the use of GT is deemed appropriate.

3.5 The Case Study Approach

A number of methodological approaches may be taken in this qualitative study (Yin, 2013). Relevant approaches include: Focus groups, Expert Survey, Case Study, and Secondary Research. The strengths and weaknesses of these have been evaluated within the current context as shown in Table 3.5

	Strengths	Weakness
Focus group	Provides an avenue for open natural discussion on the topic. As opposed to interviews, focus groups can offer a less intense or formal atmosphere for participants to freely express their views, i.e. the <i>Hawthorne</i> effect may be reduced.	Logistical challenges: Target stakeholders are high-profile individuals from across multiple geographical locations. Convening focus group(s) can be highly challenging.
Expert Interview	Allows one to directly access experience-rich insights on the given research question. Focusing squarely on experts also reduces operational or logistical challenges, and offers a significant level of reliability	Newness of topic: There is no guarantee that experts already have articulate answers as this is a relatively new field of inquiry. Furthermore, structured interviews could limit the opportunity to explore any potential relevant new ideas
Case Study	Provides an immersive first-hand experience of the phenomenon in a way that allows the mining of rich volumes of data from multiple sources on the same subject. Evidence can be robust and results can be considered significantly compelling. Case studies have been exclusively described as useful for exploring relatively new phenomena (Yin, 2013), and are applicable when the boundaries are not clear between the phenomenon and the context. This is the situation in the current study.	Offers limited room for statistical generalization. However, being the first of its kind, this study is only a first stage of the inquisition process. Its findings are subject to further confirmatory studies, which can then lead to statistical generalizations. In addition, the case-study offers analytic generalizability (Miles & Huberman, 1994), which even though different from traditional scientific generalizability, allows conclusions to be extended towards other cases that theoretically 'fit' the current cases' description.
Secondary Research	Can help to minimize chances of re-inventing the wheel. Offers less logistical challenges since much material can often be accessed electronically. Can offer very rich corpus of data,	Unlike the case-study, this approach distances the researcher from the phenomenon being studied. Secondary research simply seeks to interpret existing interpretations of the real world. This leads to a compounding of

	including text, images, video, charts, and statistical data	interpretational biases. Furthermore, the literature review has shown that there is still a paucity of research on the current topic
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Table 3.5: Comparisons between potential research approaches

Based on the comparisons presented in Table 3.5, the case study approach has been selected as suitable for the current research. Case study research is described as an approach to empirical inquiry which is suitable when (a) attempting to answer the “how” and “why” questions; (b) the behaviours of the people within the setting being studied cannot be manipulated by the researcher; (c) contextual conditions are equally of interest; or (d) the boundaries dividing the phenomenon and its context are blurry Yin (2013). In the current study, these conditions are met. For example, three out of the five questions under consideration (see Section 1.4) are “how questions”. Secondly, neither the behaviour of intermediaries to be studied nor that of its members is subject to the researcher’s direct control. Finally, it is yet unclear how the context of the intermediary relates to the intermediary as suggested by questions 2 to 5 in Section 1.4. Thus the three key conditions of the case study approach are met in this study.

3.5.1 Multiple Case-Study

Further to the choice of case-study as the approach, it is important to distinguish what type of case-study is being considered. Yin (2013) differentiates between single and multiple-case studies. The single case-study is considered suitable when testing well-formulated theories in critical cases (Yin, 2013). An illustration of such critical cases is given in Baxter (2008) – when conducting a case on “a group of 30-year-old women facing breast reconstruction post-mastectomy” This is a critical case with huge rarity. Multiple case-studies on the other hand are applicable when rarity is not the determining rationale. Multiple case-studies are generally considered to provide more robust evidence which are seen as compelling (Yin, 2013). They also offer an opportunity for cross-comparisons in terms of differences and similarities across cases. In this research, the multiple case study approach is adopted: first, because rarity is not a key rationale for case selection as intermediaries may be found in most countries; second, because the multiple case ensures evidences are robust thus improving reliability of findings.

3.5.2 Unit of Analysis

Miles and Huberman (1994) referred to unit of analysis as “a phenomenon of some sort occurring in a bounded context”. In this study, the unit of analysis is the intermediary. The intermediary is chosen because

1. It matches the research question. The current research question has at its heart “intermediary performance”. Choosing the intermediary as the unit of analysis therefore offers an appropriate match for the research question. This point can be contrasted with using the “support programme” as unit of analysis
2. It provides the opportunity to achieve internal validity through triangulation. At the intermediary level of analysis, data from within the intermediary, e.g. through its members or publications, can be analysed and synthesised to produce coherent body of evidence. This advantage can be contrasted with using individual respondents as unit of analysis
3. The intermediary offers a well-defined source of data. Being an organization with a defined office location, a defined website and with staff having defined roles, the intermediary offers a relatively clear path for accessing data.

An alternative unit of analysis is the support programme. This unit of analysis might offer advantages such as the opportunity to find more relevant academic literature since literature tend to focus more on programmes (and less on intermediaries). However, this unit of analysis fails to provide the three benefits listed above. In addition, support programmes often vary significantly in terms of goals, scope, duration, stakeholders among other variables. This limits their comparability. Insights from support programmes also tend to be dispersed thus limiting the opportunity for accessing intermediary-focused data.

3.5.3 Rationale for the Exclusive Focus on Intermediaries

Three key reasons are responsible for the exclusive focus on intermediaries in this study. First is that intermediaries are the main institutions of interest in this study; hence data from these organizations are the most relevant for this study. Second is that the intermediary’s role remains similar across national boundaries; hence focusing on intermediaries provides opportunities for direct cross-country comparisons. Third reason is that the emergent findings on intermediary are not intended to be final

theory; rather they are intended to provide a foundation for more elaborate studies of intermediary performance in which additional stakeholders could be researched.

The alternative approach is to systematically engage a broader range of stakeholders involved with sustainability programme delivery. This approach may provide additional perspectives on the current research question. However, there are four key reasons the multi-stakeholder approach is deemed less suitable:

- First, a multi-stakeholder approach significantly reduces the opportunity for direct cross-country comparability given that the types and roles of stakeholders connected to the intermediary varies from country to country (i.e. differences in institutional arrangements as identified by van Berkel, 2010)
- Secondly, a multi-stakeholder approach raises the tendency to becloud the intermediary's own perspective with perspectives from other stakeholders. This however, runs contrary to the aim of the current study which is to give primary attention to an under-researched institution – the intermediary.
- Thirdly, there are no known requirements for including additional stakeholders in the study of intermediary performance drivers. Unlike performance evaluation studies, the aim here is not to determine the extent to which defined organizational goals are met. Rather the aim here is to build theory by identifying performance drivers.
- Finally, a multi-stakeholder approach may be possible when only one country is researched. However, where four countries are being considered as in the current study, this approach proves operationally impractical given the limitations in available resources and data access.

The implication of focusing exclusively on the intermediary in this study is that it provides directly relevant, clear and comparable results on intermediary performance determinants across four countries. It also provides the foundational framework in a field which has previously remained under-researched. Thus, future research seeking to engage with additional stakeholders would have a clear path to follow.

3.5.4 Case Sampling

Case sampling in this study followed the theoretical sampling logic of grounded theory research (Glaser and Strauss, 1967; Glaser, 1992; Charmaz, 2014). Case sampling involves choosing cases based on the most critical criteria. Miles and Huberman

(1994) mention a number of criteria including relevance to conceptual framework, potential to generate rich information, analytic generalizability, potential to generate believable explanations, ethics, and feasibility as important criteria. Similarities and/or differences between cases is also highlighted in Yin (2013) as an important criterion. In this study, three criteria are considered most critical:

- accessibility
- data-richness and
- comparability

In terms of accessibility, cases in this study are sampled based on ability of researcher to directly engage the intermediary. Accessibility is critical because organizations might be unwilling to share data with researchers with whom they have no existing relationship. The second critical criteria – data richness – is important since intermediaries might vary in the quality of their experiences and/or expertise. Choosing intermediaries with well-established experience from across a variety of developing countries is a way to fulfil this criterion.

In terms of comparability, this study focuses on intermediaries with similar organizational structures, running a similar mandate and operating within similar developing country contexts. The similarity ensures there is direct comparability between cases and it ensures conclusions can be supported by a rich variety of evidences from multiple sources. The alternative approach – choosing dissimilar intermediaries – is mostly applicable where the goal is to understand important distinctions of a given case (Yin, 2013). This however, is not the main goal here. Despite their similarities, the sampled intermediaries may not be exactly the same in all respects: there remains contextual differences between them. Such contextual differences are accounted for through the research question #3 (see Section 1.4).

All three key factors – accessibility, richness, and comparability – are considered the critical in choosing cases for this study. Additional criteria, e.g. ethics, relevance (Miles and Huberman, 1994) are important and also applied in the case-sampling process.

3.6 Data Collection Methods

Table 3.6 summarizes data collection methods considered in this study.

	Participant Observation	Survey	Secondary Research	Expert Interview
Possible Targets	Events: Intermediary team meetings, industry visits, SME engagement sessions e.g. demonstration or training exercises	Participants at industry-wide events organised by the intermediary and/or its partners, e.g. the SME networking sessions	Project documents provided by the intermediary, by the sponsors, and by the participating SMEs; Other related documents, e.g. from other NGOs who have conducted similar projects	Members of the intermediary organization, management of the SMEs, persons who have had related roles, e.g. persons from NGOs who have conducted similar projects with similar SMEs
Benefits	This can provide insights on the behaviour of parties involved with the support program. Behaviour may sometimes differ from what the parties say they do, hence behaviour observation is a useful addition	This offers the opportunity to obtain an industry-wide perspective of the intervention project. It can also provide links to the managers of the SMEs in view	Programme documents are often subjected to multi-party review before publication, and as such reflect the jointly agreed position of stakeholders. This means they are less subject to opinions and biases which other methods often involve. Project documents can provide a suitable benchmark for other sources. They are also typically more detailed with respect to numbers and facts.	Interviews here are of a semi-structured type (involving a combination of open-ended and semi-closed questions). Interviews can provide a rich corpus of qualitative data on the current topic. Interviews can help to fetch stories, experiences, opinions, and unique insights which can be very useful for addressing the needs of current study. Unlike the document review, interviews offer room for probing further,

				and for obtaining non-verbal cues
Limitations	Findings are generally considered subjective and less reliable especially when there is no well-defined framework which makes observation replicable. It is heavily influenced by observer interpretations. The observations which one researcher considers striking and remarkable might be omitted by another researcher who is used to the setting	The scope of data obtainable from this source is limited. Where options have been provided, they can constitute a sort of “leading-question” situation which ideally should be avoided. There is also the issue of interest bias, which poses the risk of obtaining the same kind of response because the people who are interested in the study are the only ones who respond. Survey requires statistical significance which is challenging due to limited access/availability of respondents	This only offers information in a passive way. Unlike the interview, it cannot provide elaboration outside what is already contained within the static content of the document. Documents are also less rich in opinions, personal stories, and experiences which otherwise would be of significant value in this exploratory study	Prime among the limitations of the interview method is the social-desirability bias. This is introduced when interviewees provide answers that are not necessarily true in the bid to appear polite, or to avoid being judged. Another limiting aspect of interview in this case is the tendency for all intermediary members to offer similar answers given that they follow the same process and work on the same program(s). Responses can be undesirably homogeneous.

Table 3.6: Evaluating data collection methods for the current study

Methods shown in table 3.6 are not without limitations. Expert interviews for instance have been noted for often being fraught with social-desirability bias (Krefting, 1991). Secondary research on the other hand is limited by the fact that documents are only passive data sources – one cannot pose probing questions to documents to gain further insights on experiences, stories, and emotions. To overcome the limitations, this study adopts a combination of two data collection methods: Secondary research and expert interviews. A third method is applied – participant observation through note-taking at key events during field-visit. However this is only to provide supplementary contextual information where necessary. Survey is not applied in this study due to constraints in accessing a statistically significant sample. Achieving statistical generalizability however, is not the main goal of this case study.

3.7 Data Analysis Methods

Data collected through the methods in Section 3.5 may include numbers, charts, and formulae, however the main interest in this exploratory study are the qualitative data. Qualitative data includes interview transcripts, text from existing documents, images or other related content. Qualitative data has many important benefits most notably, its inherent “richness and holism, with strong potential for revealing complexity” (Miles & Huberman, 1994, p. 10).

A wide variety of methods are used in analysing qualitative research in social science. Analysis methods could be characterised on a number of levels. First is the relationship between data and theory: inductive versus deductive. While the former involves building theory exclusively from data, the latter involves using existing theory for understanding empirical data. In practice, the demarcation between inductive and deductive research is less rigid with researchers often using a combination of both. However, the method applied in this study may more accurately be considered an inductive analysis. This study seeks to examine the empirical evidence on a construct with limited prior theoretical conceptualization. There are no known theoretical categories into which empirical evidences may be fitted, hence a deductive approach is not applicable in this study. The inductive approach is considered a more relevant characterization as it reflects the primary aim of this study – to contribute to theory-

building on the performance drivers of an intermediary. Analysis methods may also be characterised by their units of inference.

Two key types of analysis methods – thematic and keywords – are commonly used in social science research. Onwuegbuzie (2007) identify a number of keyword-based analysis techniques, including word-count, keyword-in-context, classical content analysis and taxonomic analysis. These keyword-based techniques allow inferences to be drawn based on the appearance, non-appearance and/or frequency of a specific keyword in the data corpus. However, there are no known corpuses of related keywords as this study focuses on a relatively new field of inquiry. Hence, keyword-based analysis techniques are considered less appropriate in this research.

Thematic analysis is adopted in this study. This allows inferences to be drawn based on the key ideas (as opposed to keywords) emphasised in the data corpus. While thematic analysis may raise the potential for interpretational biases, adequate measures can be adopted to minimize biases, e.g. coding data multiple times until consistency is achieved, triangulation, member-checking and saturation. The thematic analysis process adopted in this study may be considered a member of the grounded theory family (Boyatzis, 1998; Strauss & Corbin, 1990). Many variants of the grounded theory technique exist. However, four key steps are common:

- (i) coding the raw data using memos
- (ii) grouping coded data through constant comparisons
- (iii) identifying theme(s) common to a data group
- (iv) collecting new data to address missing insights

All four core features of grounded theory are embedded in the analysis process of this study. Chapters 5&6 (data collection and analysis) provide further insights on how the four steps above were applied. Data analysis is completed independently for each intermediary. However, based on step IV above, the analysis between intermediaries followed a progressive elaboration model. This means in every subsequent round of intermediary engagement, interview questions were expanded to explore new ideas not covered by previous intermediaries. The semi-structured nature of the expert interviews makes such expansion possible.

3.8 Data Synthesis

The research questions of this study are addressed through an interpretative data synthesis process. This consists in an iterative application of a three-stage process between theme identification and explanation:

1. Juxtapose the themes and contextual data of different intermediaries
2. Identify similarities and differences between intermediaries
3. Develop explanations to address research question based on identified similarities/differences

The research questions of this study permit significant interpretational variability. Hence, granular procedures for synthesising data (as obtained in the positivist paradigm) are not applicable in this context. Research questions #4 and #5 (Section 1.4) are particularly subject to fluidity of thoughts and interpretation. However, by applying the three-stage process above all interpretational processes are given a consistent structure. This structure ensures conclusions are preceded by and are based on available data. One underlying assumption in the synthesis process is that a thematic emphasis of a given intermediary reflects a key driver of its performance.

3.9 Achieving Reliability

A number of frameworks have surfaced in the theory of case studies, which help to ensure rigour and to improve reliability. Examples are given in Guba (1981), Lincoln & Guba (1985), Kretting (1991) and Sandelowski (1986, 1993). Reliability consists in the credibility, transferability, dependability, and confirmability of the conclusions of a study as well as the process leading to the conclusions. Of the multiple techniques suggested by key literature for ensuring reliability, three are considered critical in this study: member-checking, triangulation and saturation.

Member-checking: This helps to ensure that there is alignment between researcher's interpretation of the data and the participant's idea. The technique involves asking study participants if their idea has corresponded with what researcher has captured, processed or interpreted. The technique may be applied at different stages of the data collection-analysis-synthesis process. In

this study member-checking is applied during interviews: the researcher occasionally summarizes what has been discussed by the participant and seeks confirmation or clarification. Member checking may also be applied at the end of the entire analysis. However, this may prove counter-productive and resource-intensive (Morse et al., 2002) hence it not applied in this study.

Triangulation: This technique ensures that conclusions are robustly supported by the evidence. It could take the form of source triangulation in which case data is collected from multiple sources (usually more than two), and only conclusions corroborated by all sources are upheld. It could also take the form of data-type triangulation, method triangulation, theoretical-framework triangulation, or researcher/interpreter triangulation. These refer to cases of using multiple data-types, multiple collection/analysis methods, multiple theoretical-frameworks, and multiple researchers to collect, analyse and interpret the data.

In this study, triangulation is implemented at three levels: source, analysis, synthesis levels. By source, it means only ideas expressed by multiple individuals associated to a given intermediary are considered admissible evidence for that intermediary. By analysis, it means themes only emerge from groups of data with multiple related codes. By synthesis, it means the research question is only addressed through evidence (in this case, themes) emerging from multiple intermediaries.

Saturation: This helps to ensure that the collected data are comprehensive. It ensures that all key aspects of the phenomenon being studied have been adequately considered and that the emerging conclusions are not threatened by missing information. Saturation check is implemented in this study by conducting data collection and analysis in a linear succession, i.e. intermediary-after-intermediary. Themes emerging from each successive intermediary are then compared with those from previous intermediaries to identify if any new themes have emerged. Conclusions are drawn only after saturation (i.e. no new themes emerging) has been reached.

3.10 Methodological Limitations

The research paradigm of this study – post-positivism – has the inherent limitation of leading to multiple possibly competing conclusions without a clear procedure for choosing the most appropriate conclusion. Hence, findings from this study may suggest “the truth” but may not be considered to be the only conclusive or definitive truth or answer to the research questions. This paradigmatic limitation is addressed in part by seeking plausible alternative explanations from the data, whereby stronger evidence becomes the deciding factor for admitting the conclusion as possibly true.

A second limitation relates to the inherent inability of the case study approach to produce statistically generalizable conclusions. The case study approach may not capture all possible facets, interpretations, evolutions, dynamisms, and contextual parameters necessary for such generalizations to be possible. However, it may be noted that the goal of this case study research is not to produce statistical generalizations. Rather its purpose is to identify new insights on intermediary performance which may be used in updating current theoretical conceptualizations of the relationship between intermediary performance and SME sustainability support programmes effectiveness in developing countries. This is a highly context-specific scenario in which the analytical (and not statistical) generalizability of case study research is both desirable and sufficient (Yin, 2013). The multiple case study approach (as opposed to single-case study) has also been adopted to ensure the insights are robustly evidenced.

As with other forms of qualitative research this study unavoidably leaves opportunities for certain operational limitations such as sampling biases, coding errors, categorization and interpretational biases. However, adequate care has been taken to ensure all such biases are minimized in order that the study conforms to standard requirements of case-study research (Yin, 2013). Finally the literature to which this study is intended to contribute, also rely significantly on the paradigmatic assumptions and methodological choices made in this study (e.g. Hillary, 2000; Klewitz, Zeyen and Hansen, 2012; Parker et al, 2009). This offers reliability to the choices of this study and suggests that any new findings are potentially in alignment with existing knowledge.

Limitations of a purely qualitative research are indicated in key research methodology literature (Boyatzis, 1998; Creswell, 2013; Maxwell, 2012). In this study the most critical limitation is the reduced ability to completely distil actual results from those interlaced with researcher's interpretations. Adequate attention has been given to adhering to the best practices during qualitative data collection and analysis. However, the researcher's passive influences on research findings may not be completely eliminated. Given the adoption of a post-positivist research paradigm in this study, this limitation remains admissible. With a post-positivist paradigm the goal is not to make absolute assertions about truth from a dispassionate scientist standpoint. Rather the aim is to highlight what is probably true as suggested by the interpretation of available evidence (Guba and Lincoln, 1994).

Quality and volume of available data poses a limitation to the current study. It is well-known that in developing countries there may be limited availability of robust data sets on niche subjects. Lower incomes, institutional weakness and poor infrastructure compared to advanced countries are factors that may contribute to limitations in available data. Such limitations in available data are acknowledged in this study; however, exhaustive efforts are made to collect as much relevant data as possible through the iterative process of grounded theory research.

3.11 Key Learning

- The assumptions being made in this study are reflective of a post-positivist paradigm. The post-positivist paradigm is the dominant paradigm used in similar studies on the subject matter.
- The multiple case-study approach is considered suitable. It helps to gain deep initial insights on an under-researched topic. An alternative such as a survey requires that theoretical relationships be previously established, which is not the case here.
- Data collection and analysis are based on a grounded theory approach – involving theoretical sampling, constant comparison and iterative rounds of data collection and analysis. Traditional hypothetico-deductive approach is not considered the most suitable given the limited theoretical foundation for the current topic in existing literature

- Data collection methods are mainly expert interviews, desk research and partly participant/field observation.
- The intermediary is considered the unit of analysis given that it is the subject of the research question
- Standard reliability checks used in qualitative research are applied – triangulation, member checking, saturation
- Limitations of the methodological choices are:
 - general inability of the post-positivism paradigm to produce a singular definitive answer (section 3.10)
 - the use of the grounded theory approach (section 3.4.4)
 - the use of purely qualitative data (section 3.10)
 - the focus on only intermediaries or exclusion of other potentially relevant stakeholders (section 3.10)
 - the volume and quality of available data (section 3.10)
 - possibility of interpretational biases (section 3.10)
 - the limited statistical generalizability of case study research (section 3.10)
- Despite the limitations, all methodological choices made in the study have underlying rationale which are discussed in the sections written in parentheses.

4

Case Background

This chapter presents a background on National Cleaner Production Centres (NCPC) – the intermediaries to be examined in this study. The NCPC programme is arguably one of the most prominent examples of SME sustainability support programmes delivered through nationally integrated intermediaries in developing countries. In this chapter, key findings from recent evaluation studies of the NCPC programme are presented along with other relevant programme details. Based on desk research this chapter offers a useful layout of the NCPC programme for further analysis.

4.1 The National Cleaner Production Centres Programme

The United Nations Industrial Development Organization (UNIDO) and the United Nations Environment Programme (UNEP) began the National Cleaner Production Centres Programme in the early 1990s. This was in response to growing calls for international organizations to “promote, facilitate and finance as appropriate, the access to and transfer of ESTs [Environmentally Sound Technologies] and corresponding know-how, in particular to developing countries ...” (Luken et al., 2016). Following the 1992 Rio conference, both UNIDO and UNEP agreed to engage in a worldwide promotion of cleaner production. The definition of cleaner production at that time was provided by UNEP – “the continuous application of an integrated preventive strategy to processes, products and services, to increase efficiency and reduce risks to human and the environment”.

The establishment of NCPCs has continued to grow since their debut in the 1990s. Table 4.1 shows NCPCs around the world based on a 2014 study. The first set include the NCPCs in China, India, Mexico, Tanzania and Zimbabwe (Luken et al. 2016). Selection of countries was based on the prevailing industrial development outlook: developing countries with seemingly high potential for fast-paced industrial growth were considered the most critical for NCPC establishment. Starting in the late 1994 to

mid-1995, centres in Brazil, Slovakia and Czech Republic are sometimes considered as part of the first set; however, these countries self-financed their centres unlike the original five who were financed through bilateral agreements. The process of securing funding for these new centres was partly responsible for their late start. By early 2014, there were 58 NCPCs operating in 56 countries (Luken et al. 2016).

NCPCs	Year Started	Initial Donor	Status [Centre (C) vs Project (P)]	RECPnet member (Y/N)
Albania	2009	UN Trust Fund	C	Y
Armenia	2005	EU, Austria	P	Y
Azerbaijan	2014	EU	C	N
Belarus	2014	EU	P	N
Bolivia	1995	Switzerland, USA, Denmark	C	Y
Brazil (Senai)	1995	Brazil	C	Y
Bulgaria	2007	Switzerland	P	Y
Cambodia	2004	Switzerland	C	Y
Cape Verde	2010	UN Trust Fund	C	Y
China	1995	The Netherlands	C	Y
Colombia	1998	Switzerland	C	Y
Costa Rica	1998	Switzerland	C	Y
Croatia	1997	Czech Republic	C	Y
Cuba	2001	Austria	C	Y
Czech Republic	1995	Austria	C	Y
Dominican Republic	2014	Austria	P	N
Ecuador	2013	Austria	C	N
Egypt	2004	Austria, Switzerland	C	Y
El Salvador	1999	Switzerland	C	Y
Ethiopia	2000	Italy	C	N
Georgia	2014	EU	C	N
Ghana	2014	Switzerland	P	N
Guatemala	1999	Switzerland	C	Y
Honduras	2000	Canada	C	Y
Hungary	1997	Austria	C	N
India	1995	The Netherlands	C	N
India (Gujarat)	2003	Switzerland	C	Y
Indonesia	2012	Switzerland	C	Y
Jordan	2003	Switzerland	C	Y
Kenya	2000	UNDP	C	Y
Lao PDR	2004	Switzerland	C	Y

Lebanon	2002	EU/Austria	C	Y
Mauritius	2014	Mauritius	P	N
Mexico	1995	The Netherlands	C	Y
Montenegro	2010	Slovenia	P	Y
Morocco	2000	Switzerland	C	Y
Mozambique	2000	Italy	C	Y
Nicaragua	1997	Austria	C	Y
Peru	2002	Switzerland, USA	C	Y
Republic of Korea	2001	Republic of Korea	C	Y
Republic of Moldova	2009	Czech Republic, Austria	P	Y
Romania	2010	Switzerland	C	Y
Russia (NW)	1999	United Kingdom, Austria	C	Y
Russia (Volga)	2011	UNIDO, Russia	C	Y
Rwanda	2009	UN Trust Fund	P	Y
Senegal	2011	France	C	Y
Serbia	2007	Slovenia, Austria	C	Y
Slovakia	1995	Austria	C	N
South Africa	2002	Switzerland, Austria	C	Y
Sri Lanka	2001	Norway	C	Y
Tanzania	1995	The Netherlands	C	Y
The f.Yugosl. Republic of Macedonia	2001	Czech Republic, Austria	C	Y
Tunisia	1996	USAID, Switzerland	C	Y
Uganda	2001	Austria, Norway	C	Y
Ukraine	2007	Slovenia, Switzerland	C	Y
Uzbekistan	2005	Austria	C	Y
Vietnam	1998	Switzerland	C	Y
Zimbabwe	1995	The Netherlands	C	Y

Table 4.1: NCPCs around the world (source: Luken et al. 2016)

In some countries, there was an establishment of a National Cleaner Production Programme (NCPP) which preceded the NCPC. However, both the NCPC and NCPP have similar objectives (van Berkel, 2010). A number of other countries such as

Tunisia and Namibia also have organizations operating similar to the NCPC and are part of the RECPnet community.

Since 1994/1995 when the first set of five National Cleaner Production Centres were established, there have been a number of programme reviews conducted both by UNIDO/UNEP and by third-party consultants (Luken et al, 2016). The first evaluation was by Kisch et al (1996) who studied the potential impact the programme had on the sustainable industrial development of host countries. Their recommendations included making the NCPC services more tailored to suit the national agenda and demand of local stakeholders. They also highlighted the need for the NCPCs to become fully integrated within the local network of policy and business networks, and to exchange lessons with other centres.

Two additional reviews of the NCPC programme emerged in the early 2000s – Luken et al (2003) and Luken & Navratil (2004). The former examined experience of the first eight centres, and observed that 75% of cleaner production technologies adopted by firms so far were of the lower order of complexity and investment. The second review examined the actual economic, environmental and social impacts of the cleaner production interventions. The authors concluded the impact has been modest despite significant opportunities available in the industry in general. They noted the need for further awareness raising as well as the provision of financial and policy support. They equally pointed out how the exclusive promotion of cleaner production on the grounds of economic benefits is unlikely to succeed, especially among SMEs; hence the need for incentives such as financing and supporting policy.

By the end of the decade, two new peer-reviewed journal articles had surfaced providing an evaluation of the NCPCs – van Berkel (2010a), van Berkel (2010b). van Berkel (2010a) observed that NCPCs had had significant success in promoting cleaner production among businesses and governments. The author also argued that the NCPC programme was gaining relevance. The key challenge however, was with adapting the centre's services to suit evolving demands of governments and businesses. The second paper – van Berkel (2010b) pointed out the increasing diversification between the NCPCs. Although they were all established based on similar principles and with similar mandates, the NCPCs by 2010 had begun to show marked variability in their service offerings and modus operandi. The author posits that it is important to understand the root cause of these divergences, as it may help

unlock new insights on how to best design more effective centres going forward. Luken et al (2016) builds on the findings of all previous reviews by evaluating the NCPC programme against its original set of goals and expectations.

4.1.1 Evolution and Diversification of NCPCs

Since its early days, the National Cleaner Production Centres Programme has undergone key changes. Figure 4.2 summarizes key stages in the evolution of the NCPC programme.

Examples of the evolutionary milestones include reorientation of Centres and expansion of the Cleaner Production programme which took place in 2009. This happened following the recommendations from independent assessment (UNIDO, 2008). The scope of Cleaner Production was expanded to include other dimensions of sustainable development: improved resource efficiency, reduced waste, improved



Figure 4.1: Stages of Evolution in the National Cleaner Production Centres Programme (source: UNIDO/UNEP, 2015)

preservation of health and well-being of employees, consumers and local community. This newly expanded scope was tagged Resource Efficiency and Cleaner Production (RECP). The strategic intent behind this expansion was to help scale up the impact of the NCPCs, and to make them more relevant to a wider national audience (Luken et al. 2016). In the independent assessment (UNIDO, 2008) it was also observed that the centres had begun to evolve along different trajectories due to the influence of internal programme factors and the external contextual factors. Van Berkel (2010) identified internal factors to include centre level factors – host institution, management and governance structure and key staff; country level factors including project features, donor requirements, and partnerships; as well as network level factors. The external

factors identified include state of economy, state of environment, and status of know-how. Figure 4.2 illustrates the influence of internal and external factors on diversification.

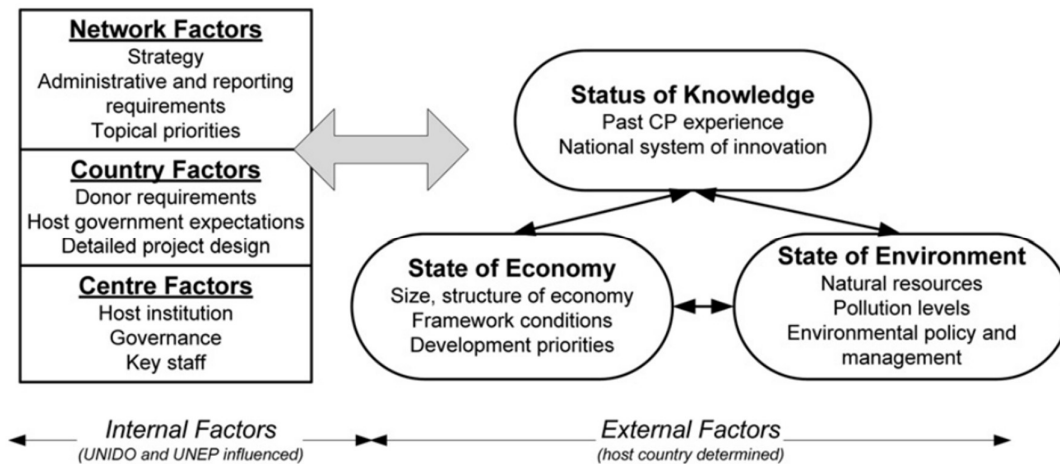


Figure 4.2: Factors driving diversification among NCPCs (Source: UNIDO, 2008)

Strategy diversification was observed in three key ways: Centre’s focus, service model, and governance & ownership. These occurred in response to three main factors: donor’s interest in using NCPCs to deliver non-core CP programmes such as energy efficiency, evolution in the agendas of international development community, and request from the Centres to extend service focus to meet needs of local industries. This development could be considered either in a positive light as an evidence of NCPCs adaptability, or negatively as a scope creep. The latter view is because most NCPCs had not fully achieved their original cleaner production goals. Van Berkel (2010) conceived NCPC specialization along four axes as shown in Figure 4.3: technology, policy, environment-focused, and people-focused.

In terms of service model, NCPCs showed a level of diversification. When the centres were set up, they were intended to be the national leader or at least one of the most nationally prominent centres for providing CP-related services. However, from the independent review of the NCPC programme (UNIDO, 2008), the original intention was not always met. Many centres were found operating as another player in a crowded market of similar service providers including consultants, incubators, and various environmental sustainability institutes (van Berkel, 2010). Some of these initiatives

were competing while others were complementary. Although countries such as China attempted segmentation of service providers into regional tiers, e.g. national-, sub-national- and local-level tiers, such efforts were not universally agreed to. A suggested alternative was the service-based segmentation (ibid). Three tiers were defined:

- Tier 1 – Audit and Training services
- Tier 2 – Specialist services (policy or technology)
- Tier 3 – Networking services

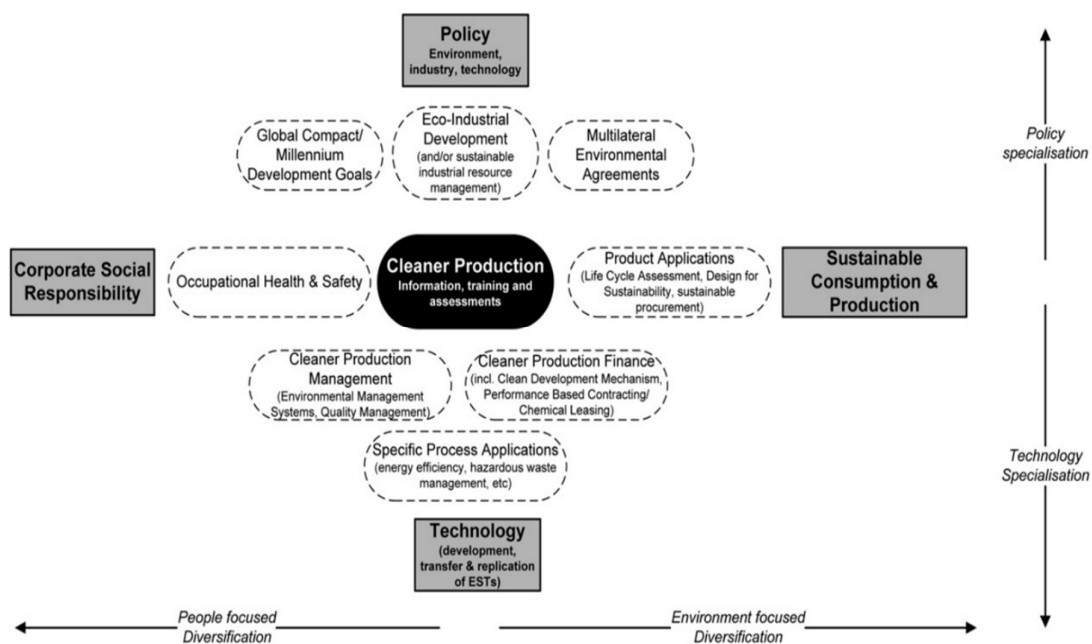


Figure 4.3: Specialization and Diversification in NCPC Service Areas (source: van Berkel, 2010)

Since most service providers offer a range of services across the tiers, their position within the service delivery network could be defined based on the service proportions across tiers. Figure 4.4 illustrates the service mix of select NCPCs.

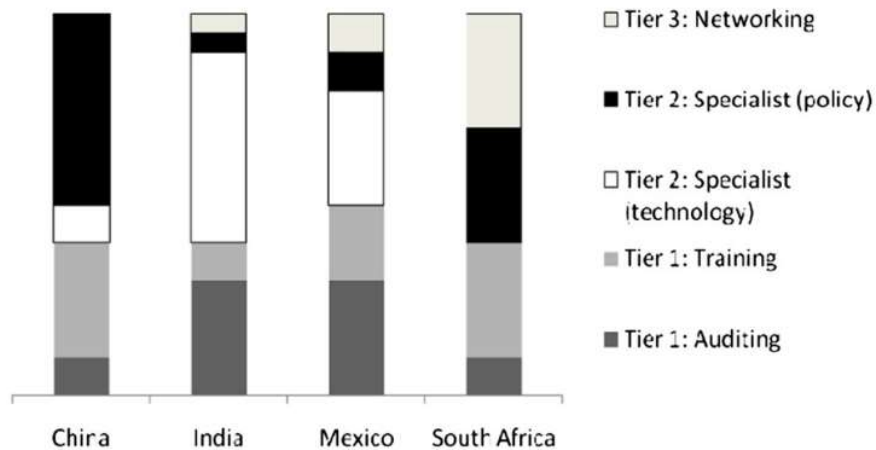


Figure 4.4: NCP Service Mix (source: van Berkel, 2010 based on interpretation of the evaluation study reported in UNIDO, 2008)

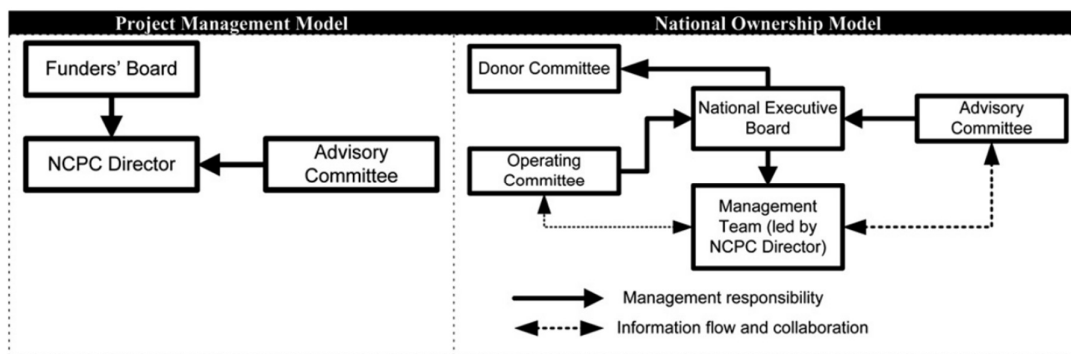


Figure 4.5: NCP Management and Governance Models (Source: van Berkel, 2010)

Another noted area of diversification was in the governance and ownership models. This occurred as centres transitioned from a project management model to a nationally-owned institutional model. These two models are juxtaposed in Figure 4.5. The former model which had tripartite governance sufficed when NCPs were newly set up and were being run from the initial project funding. They existed mostly as a local entity to implement projects commissioned by UNIDO and UNEP and other donor institutions.

After expiration of the initial project, the centres entered a turbulent phase characterised by three main hurdles. First was with the funders' board. Members of this board had a limited mandate which did not include remaining active beyond the

project phase. Their statuses and roles beyond the project phase were undefined, thus limiting the NCPCs accountability towards the board. Second, inputs from the advisory committee was met with varying levels of responsiveness from the NCPC. Members of this committee were often engaged based on personal or professional title and not as official representatives of their institutions. Although this approach sufficed for the project management phase of NCPCs, it posed challenges for the transition, thus contributing to diversification.

A third hurdle of the transition from project phase to the institutional phase was around legal status and independence. In the project phase, most centres were supported partially by host institutions. To effectively transition however, most centres had to seek new statuses, e.g. non-profits, associations, institutes, and private companies. Choosing a status posed unique challenges, and ultimately contributed to diversification of the centres.

Centres demonstrated operational diversification in addition to strategy diversification. In each of the four service areas some differences are observed between NCPCs (van Berkel, 2010). First with information dissemination, centres varied in the case studies, websites, fact-sheets, and materials they provided. Areas for improvement in information dissemination include strategy and planning, contents and presentation. A second service area – training – had many similarities across centres, especially since the training was mostly based on the cleaner production methodology. However, variations exist in the training delivery, use of case study, and completion requirements. Centres also varied in the portfolio of courses offered, with some centres delivering advanced CP topics including lifecycle assessment, EMS, and design for sustainability. The third service area – assessment and demonstration – has equally shown wide variability across centres.

The service models used in assessment and demonstration in some cases involved the NCPC completing the exercise with inputs from company staff. In other cases, the assessment was integrated into a training module where company staff conduct the assessment with supervision from the NCPC. While centres in South Africa, Sri Lanka and Egypt adopted the former approach, Vietnam, China and India applied the latter. Staffing also varied across centres. While some centres had staff, who conducted CP assessments e.g. China and India, others relied on consultants e.g. South Africa.

In some countries, a combination of both models is adopted e.g. Sri Lanka and Morocco. Assessment and dissemination varied in a range of other ways including outputs, follow up, and methodology. In terms of policy advice, there were variations between centres in their mix of reactive and proactive approaches. Reactive policy advice involved responding to government consultative processes, and working groups on environment and sustainability. Proactive approaches include lobbying for policy changes. In addition to the core service areas of NCPCs, the technology transfer services equally had variability across centres.

4.1.2 Organizational Management Practices

For organizational management practices UNIDO/UNEP recommend five key areas NCPCs must pay careful attention to: strategy, autonomy, operational management and expertise. These five areas are said to determine both the short and long-term success of the centres. Key factors defining success within the five areas are shown in Table 4.2 while the interrelationships between the five are illustrated in Figure 4.6.

Key Element	Contributing Key Factor
Strategy	Vision and mission Role and composition of the Board Strategy formulation Control, decide and govern Transparency and accountability
Autonomy	Legal entity Representation Strategic alliances Conflicts of interest Stakeholder engagement and external communication
Operational Management	Operational planning Leadership Staffing Organizing Coaching and communication Controlling Finance management Ethics and integrity
Business	Prospecting and acquisition Services provided Training provided Information dissemination and marketing Public relations and networking
Expertise	Knowledge Management Face-to-face methods

	Paper Online tools
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Table 4.2: Factors influencing organizational and management success of NCPCs
(Source: UNIDO-UNEP, 2010)

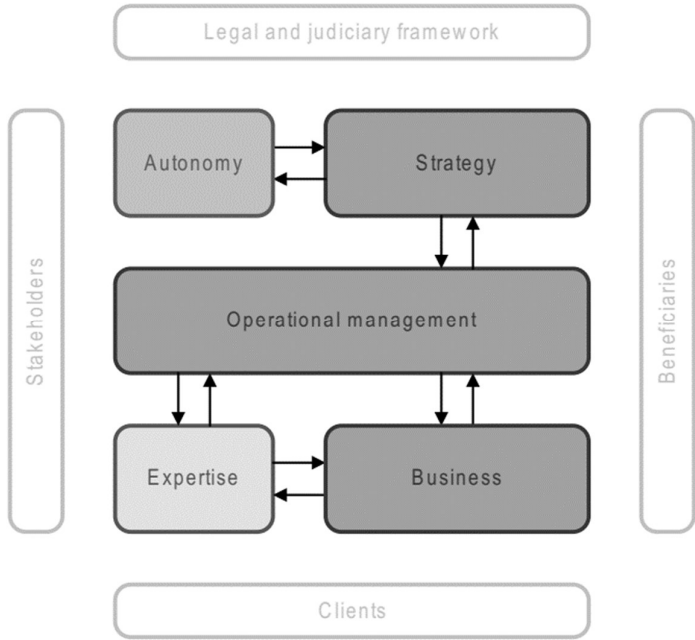


Figure 4.6: Relationships between organizational factors (Source: UNIDO-UNEP, 2010)

4.1.3 NCPC Programme Assessment

To evaluate NCPCs against original programme expectations, Luken et al. (2016) reported on a 2014 survey where Centre directors were asked to describe their performance across a set of 12 criteria. Their findings are illustrated in Figure 4.7

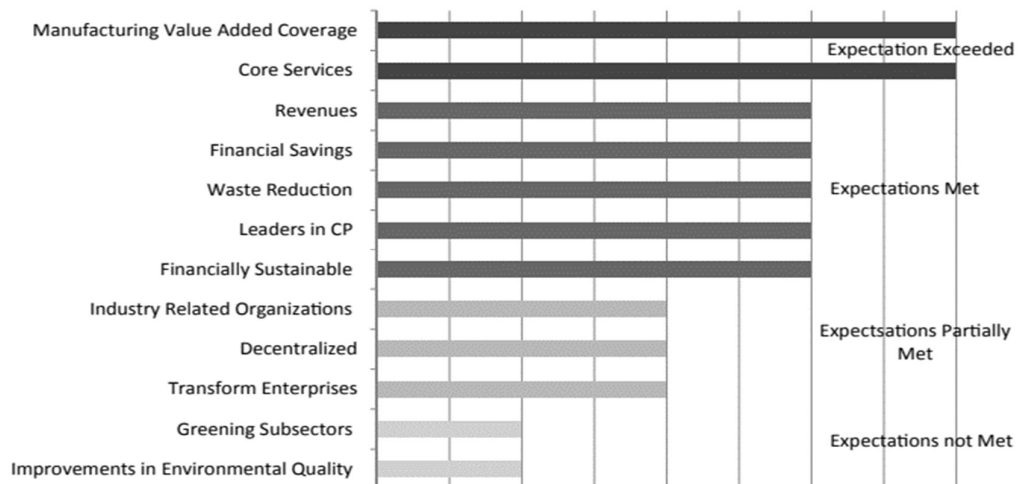


Figure 4.7 UNIDO/UNEP expectations met in varying degrees (Source: Luken et al. 2016)

Coverage: By 2014 the number of NCPCs had exceeded the original expectation as well as the coverage of Manufacturing Value Added. UNIDO and UNEP planned to establish 20 centres across the countries responsible for 80% of all industrial output of the developing and transition economies. However, due to unexpectedly high demand the number of centres had risen to 58 across 56 countries which together represent 83% of MVA in developing and transition economies (Luken et al, 2016).

Core Services: Four services were considered core for NCPCs at inception – information dissemination and awareness creation, training, technical assistance and in-plant assessments, and policy advice. However, Cleaner Production technologies and investment promotion was added as a fifth core service when the need became apparent in 1998 (Luken et al, 2016). In addition to core services, centres were also pursuing a diverse range of non-core services some of which had not been envisaged at inception.

Revenues: Expectations on centre financing were met. At inception, UNIDO and UNEP projected centres would receive annual funding in the range of US\$320K to US\$420K for six after which they would be positioned for financial self-sustainability. Based on 2013 revenue data with the exclusion of outlier South-Korea, most centres averaged an annual revenue of US\$440K (Luken et

al, 2016). An earlier report from 2008 found similar revenue levels at an average of US\$460K per annum (UNIDO, 2008).

Cost-effective Implementation of CP measures: Based on experience in China and India, UNIDO and UNEP anticipated that implementation of Cleaner Production measures particularly the simple technology measures would be cost-effective. Although the results of all in-plants demonstrations since inception of NCPCs is not easily summarized, available evidence suggests the demonstration projects have been cost-effective in reducing energy, water, and material consumption (Luken et al, 2016).

Pollutant Reduction: Another expectation UNIDO and UNEP had at inception of the NCPC programme was that the programme would lead to significant pollutant and waste reduction. This expectation was based on earlier experiences in China and India. Similar to the cost-effectiveness criteria however, it is difficult to assess all NCPC activities till date to determine performance with regard to pollutant reduction. However, available evidence suggests the centres have met expectations (Luken et al, 2016).

National Expertise: The centres also met expectations in providing national leadership on resource efficiency and productivity. They had not only become nationally relevant, but were equally developing niche specialist expertise which were largely unavailable in the local market. Expertise areas include cleaner production, industrial environmental management, environment and industry policy and corporate sustainability.

Long run Sustainability: The NCPCs were envisaged to outlast the period of their initial funding which in most cases was for three to six years. Within the first 16 years of the NCPC programme, 50 centres had been set up of which 46 remained active in the cleaner production field while other four evolved and remained active in other fields. Most centres significantly reduced dependence on funding from UNIDO/UNEP and donors, while their revenue from national governments and service fees increased

Institutional Arrangement: Expectations were partially met with regard to the Centres' institutional arrangements. At the NCPC programme inception, UNIDO and UNEP conceived an institutional arrangement with three key

features. First, the centres would be hosted by an industrial association, chambers of commerce, industrial productivity centres, universities or similar organizations. Second, the centres would have a tri-partite steering committee that includes the business sector, public institutions and UNIDO/UNEP. Third, the centre would become autonomous public or private entities. While centres had achieved a level of autonomy and were hosted as planned, their governance models often differed the desired tripartite steering committee model.

Decentralization to state government and research institutions: Another partially met expectation was the integration of centres into the local government system. While in countries like China and India centres have been successfully regionalized, in many others they remain centralized. Partly responsible for this are funding constraints and the relatively small size of industries.

Transformation of Enterprises: The NCPCs had profound impact in transforming enterprises, however monitoring and evaluating such impact can be difficult. Luken et al (2016) reports that UNIDO and UNEP's expectations on this goal were partially met.

Greening of manufacturing sub-Sectors: A key area in which evaluation concludes that expectations were not met is the greening of entire manufacturing sub-sectors. Although many in-plant demonstration exercises were conducted, they did not clearly lead to a significant greening of the sub-sectors. Evidence from Vietnam was cited in Luken et al (2016) to show how out of all surveyed companies, only 11% had engaged in cleaner production options following NCPC demonstration exercises.

Measurable improvements in ambient environmental quality: This is a second key area in which the NCPC programme did not meet expectations. At the inception of the NCPC programme, both UNIDO and UNEP reckoned the extensive implementation of cleaner production options would lead to measurable improvements in environmental quality. However, due to the absence of baseline information and the NCPCs limited scope for collecting such information, it was not possible to conclude the NCPC programme led to an improved environment.

In addition to the original set of twelve expectations, Luken et al (2016) also identified four activities most NCPCs were engaged with:

1. Provision of non-core Cleaner Production services: most NCPCs have developed considerable expertise outside the core cleaner production methodology. Energy efficiency and environmental management systems were noted to be quite popular among the centres (Luken et al, 2016). Figure 4.8 summarizes recent survey results on non-core services of NCPCs.
2. NCPC involvement in implementing multilateral environmental agreements: Centres have also evolved beyond original expectations in becoming facilitators for the local implementation of multilateral environmental agreements.
3. South-south cooperation: Another key observation made about the NCPCs is the emergence of a pool of mature NCPCs who could help in building capacity of other NCPCs. This trend was not foreseen at the programme inception stage.

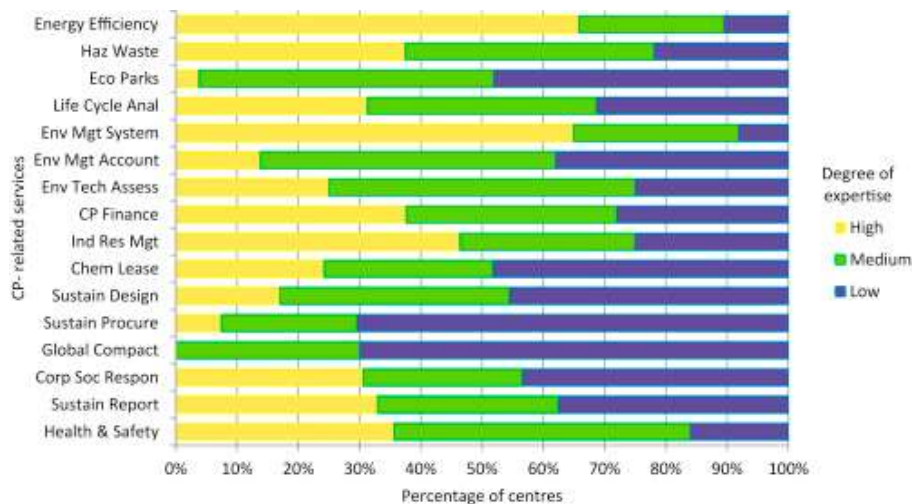


Figure 4.8: Non-core Cleaner Production services of NCPCs (Source: Luken et al, 2016)

As an example, the NCPC in South Africa has been instrumental in setting up and strengthening other NCPCs in Africa including that in Ghana.

4. Networking: While setting up the programme UNIDO and UNEP did not envisage that centres would be actively involved in networking activities with one another. However, as noted in Luken et al (2016) NCPCs as well as other similar intermediaries had been involved in the RECPnet. RECPnet stands for Resource Efficiency and Cleaner Production network, and operates both

regionally and globally. It offers a platform for NCPCs and other member organizations to share experiences and leverage external strengths in terms of expertise, technology, and funding. There are currently over 70 members of the network.

4.2 Key Learning

- Previous research on NCPCs have been evaluative in nature. Key results indicate that the NCPCs are
 - evolving and diversifying in response to local conditions
 - meeting most of the expectations set during initial establishment of the NCPC programme. Two unmet expectations are the greening of entire subsectors and creating improvement of environmental quality
- The National Cleaner Production Centre programme is one of the most widespread and well-known examples of sustainability support programmes for SMEs in developing countries. It represents a suitable programme for the current study.

5

Data Collection

Chapter 5 summarizes details of the four intermediaries engaged in this study: the National Cleaner Production Centres (NCPC) of South Africa, Ghana, Kenya and Uganda. The chapter also provides rationale on specific data collection choices not already discussed in section 3.5. Background information on each NCPC was obtained through desk research, while the more detailed expert interviews were conducted through field-visits and phone calls. In addition to NCPCs, experts from a number of related organizations – partners of the NCPCs – were engaged to collect supplementary data. The chapter concludes with a qualitative evaluation of the data sources arguing they offer suitable depth and breadth for supporting the current exploratory study.

5.1 Choice of Intermediaries

The choice of intermediaries in this study is based on theoretical sampling guidelines of grounded theory research (Charmaz, 2014). Theoretical sampling is driven by gaps in available data whereas traditional (also called purposeful) sampling is driven by need for representativeness of the population (Glaser, 1992). By its nature theoretical sampling is an iterative process occurring at the end of each round of data collection and analysis, until saturation is established (Charmaz, 2014). Purposeful sampling – the alternative to theoretical sampling – is not considered applicable in this study due to its limited alignment with the practice of grounded theory research (Charmaz, 2014).

Section 3.4.3 highlights the three key criteria used in deciding which intermediaries to study: accessibility, data-richness and comparability. By focusing exclusively on the National Cleaner Production Centres established under the UNIDO-UNEP programme [see Table 4.1], the comparability criterion is adequately addressed.

NCPCs operate with similar mandate, structure, tools and procedure. Hence intermediary comparability may be considered given.

Two additional sampling criteria are critical in this study: data-richness and accessibility. Data richness was determined through indicators emerging from desk research (e.g. years of operation, availability of corporate reports, news on website, range of projects announced) as well as experts’ referral. Accessibility was determined by considering factors such as availability of contact person, travel restrictions and language barriers. Table 5.1 summarizes the key observations made by researcher across the 15 NCPCs in Africa. A “---” means no evidences could be found.

Country	Data-Rich?					Accessible?
	Operating since	Has Website?	Publishes news, events and project updates?	Project portfolio	Experts’ referral?	
Cape Verde	2010	No website	---	---	---	Potential language barrier
Ghana	2014	Yes	Regular	Growing	Yes – during case study #1	No barrier
Egypt	2004	Yes (unavailable)	---	---	Yes – during case study #1	Potential language barrier
Ethiopia	2000	No website	---	---	---	No barrier
Kenya	2000	Yes	Regular	Growing	Yes – during case studies #1 and 2	No barrier
Mauritius	2014	Yes	Regular	Growing	Yes – during case study #1	No barrier
Morocco	2000	No	---	---	---	Potential language barrier
Mozambique	2000	Yes (unavailable)	---	---	---	Potential language barrier
Rwanda	2009	Yes (unavailable)	---	---	---	No barrier
Senegal	2011	No	---	---	---	Potential language barrier
South Africa	2002	Yes	Regular	Large	Yes – during preliminary interviews	No barrier

Tanzania	2001	Yes	Occasional	Growing	Yes – during case studies #1 and #3	No barrier
Tunisia	1996	Yes	Regular	Large	---	Potential language barrier
Uganda	2001	Yes	Occasional	Growing	Yes – during case study #3	No barrier
Zimbabwe	1995	No website	---	---	---	No barrier

Table 5.1 Evidences used in deciding the NCPC to study (Details on website availability were last checked on 09 – Feb – 2019)

Based on its all-positive indications on Table 5.1, NCPC-South Africa was studied first. NCPC-SA was the only intermediary whose data-richness was confirmed during preliminary expert interviews. NCPC-SA is reported to be a regional leader in Africa (UNIDO-UNEP, 2010). The NCPCs of three additional countries – Ghana, Kenya, Uganda – were studied after they were recommended by experts from previous case(s). Ghana National Cleaner Production Centre had fewer years of experience compared to the average on table 5.1. However, given the strong expert recommendations and other positive indications from its website (e.g. regular news, growing project portfolio), this intermediary was included in the study. Two countries from Table 5.1 – Mauritius and Tanzania meet key criteria on data-richness and accessibility. However, a clear saturation point had been established after the fourth country of this study, i.e. Uganda (see Table 6.1).

It appears a pair-wise approach is taken in selecting NCPCs. However, this is not the case. Certain NCPCs share strong similarities in terms of history and/or size. For example, NCPCs in Kenya and Uganda share a number of similarities, i.e. both were established early 2000s; both operate in the East African economic bloc. However, the two intermediaries are investigated in this study because they meet the theoretical sampling logic described in paragraphs 1-4 of this section. Alternative is to exclude either Kenya or Uganda from the study. However, such exclusion would mean that other NCPCs would need to be investigated until saturation is established. Two NCPCs may be considered suitable candidates for further investigation based on Table 5.1 – Tanzania and Mauritius. However, while Tanzania shares the same set of similarities with Kenya and Uganda, i.e., age, location, size, etc.; Mauritius shares strong similarities to Ghana in terms of age and size. Ultimately all intermediaries considered

in this study, i.e. all NCPCs share one form of similarity to one another. Similarity of the intermediaries is not an exclusion criterion and there was no deliberate pair-wise selection of intermediaries based on similarities.

5.2 Engagement with Intermediaries

Table 5.2 reflects variability in engagement with intermediaries. NCPCs vary significantly in their sizes, hence the number of experts interviewed in each. The National Cleaner Production Centre of South Africa (NCPC-SA) for example, had over twenty-five staff spread across the centre's three office locations. Staff roles varied from a dedicated communications manager to a training coordinator. By contrast, another intermediary – the Uganda Cleaner Production Centre – had less than ten members including interns. This variability is reflected in table 5.2 which shows some organizations had more interviewees than others.

Table 5.2 shows a number of organizations were engaged in this study for supplementary data. These were organizations with strong links to the local cleaner production centres. The assumption was that experts within such organizations could provide supplementary insights on the intermediaries, i.e. NCPCs. Experts interviewed in the NCPCs come from all tiers of management and cover most of the roles involved in the SME service delivery process. Table 5.2 shows there were cases of interviews lasting less than ten minutes. Section 5.4.1 discusses limitations and implications of such short interviews.

Country	Organization	Interviewee	Date	Interview Duration	Medium	Total Duration of Engagement	Other Resources Consulted	
Ghana	Association of Ghana Industries (AGI)	Chief Executive Officer	13-Mar-2017	34:01	Face-to-Face	2 days	Corporate Website	
		Technical Officer	21-Mar-2017	19:58				
		Programme Manager	13-Mar-2017	29:37				
	Ghana National Cleaner Production Centre (GNCPC)	Director	08-Mar-2017	01:47:36	Face-to-Face	3 weeks	Corporate Website	
		Assistant Director	21-Feb-2017	31:16				
UNDP – United Nations Development Programme	SAG National Co-ordinator (Ghana)	07-Mar-2017	37:45	Face-to-Face	1 day	Corporate Website		
Ghana Ministry of Trade and Industry (MTI)	Industrial Promotion Officer	21-Mar-2017	08:06	Face-to-Face	2 days	Corporate Website		

	SME & Technology Division Manager	27-Mar-2017	18:32			
Impact Hub Accra	Community Officer	28-Mar-2017	28:56	Face-to-Face	1 day	Corporate Website
British Council (Ghana)	Consulting Project Manager	30-Mar-2017	37:53	Face-to-Face	2 days	Publicity Brochures, Corporate Website
	Business Development Consultant	20-Apr-2017	27:57	Phone		
UNEP – United Nations Environment Programme	SAG Programme Co-ordinator	21-Mar-2017	04:12	Face-to-Face	1 day	Corporate Website

	SAG Networking Forum	Multiple Participants	21-Mar-2017	50:58	Face-to-Face	1 day	Corporate Website
Kenya	Kenya National Cleaner Production Centre (KNCPC)	Deputy Director	04-Apr-2017	44:18	Face-to-Face	7 weeks	Publicity Brochures, Training Programme Materials, Corporate Website
		Technical Officer 1	05-Apr-2017	29:36			
		Technical Officer 2	03-Apr-2017	36:14			
	ARSCP – African Roundtable on Sustainable Consumption and Production	Country Representative (Kenya)	04-Apr-2017	52:44	Face-to-Face		Corporate Website
	KNCPC Affiliate	Independent RECP Consultant	13-Apr-2017	53:07	Face-to-Face	1 day	N/A

National Environmental Management Authority (NEMA) Kenya	Compliance Manager	04-Apr-2017	15:48	Face-to-Face	1 day	Corporate Website	
National Environment Trust Fund (NETFund) Kenya	Programme Officer	06-Apr-2017	20:26	Face-to-Face	1 day	Corporate Website	
Kenya Industrial Research Development Institute (KIRDI)	Senior Research Scientist	05-Apr-2017	01:06:26	Face-to-Face	2 days	Corporate Website	
	Energy Expert	03-Apr-2017	36:14				
Kenya Geothermal Development Commission (Kenya GDC)	Environmentalist	20-Apr-2017	08:31	Face-to-Face	1 day	Corporate Website	

	GearBox	Project Manager	11-Apr-2017	19:22	Face-to-Face	1 day	Corporate Website
	Kenya Climate Innovation Centre (KCIC)	Research & Policy Officer	11-Apr-2017	19:04	Face-to-Face	1 day	Corporate Website
	UNDP – SAG Grantees Quarterly Meeting (Kenya)	Multiple Participants		3:25:45	Face-to-Face	1 day	Corporate Website

	Kenya Private Sector Alliance (KEPSA)	Project Officer (SAG)	21-Apr-2017	28:06	Face-to-Face	1 day	Corporate Website
	NEMA-KNCPC Industrial Symbiosis Workshop	<i>Multiple Participants</i>	04-May-2017 05-May-2017		Face-to-Face	2 days	Corporate Website
Uganda	Uganda Cleaner Production Centre	Director [Session 1]	24-May-2017	01:07:54	Face-to-Face	6 weeks	Publicity Brochures, Training Programme Materials, Corporate Website
		Deputy Director	01-Jun-2017	01:28:14			
		Technical Officer (Eco-Innovation)	31-May-2017	43:30			

		Technical Officer (Lake Victoria Project) [Session 1]	30-May-2017	56:18			
		Technical Officer (Industrial Symbiosis)	25-May-2017	37:47			
		Technical Officer (Lake Victoria Project) [Session 2]	28-Jun-2017	43:00			
		Director [Session 2]	06-Jun-2017	22:09			
		Director [Session 3]	30-Jun-2017	32:48			
	NFT Mawazo	Group CEO	06-Jun-2017	51:48	Face-to- Face	2 days	Corporate Website

		Project Manager	05-Jun-2017	14:30			
	OutBox	Capacity Development Lead	05-Jun-2017	13:47	Face-to-Face	1 day	Corporate Website
South Africa	National Cleaner Production Centre – South Africa	Director	31-Oct-2016	01:12:08	Face-to-Face	7 weeks	Business Plans, Publicity Brochures, Training Programme Materials, Corporate Website
		Project Manager (Communications & Marketing Unit)	10-Nov-2016	01:01:41			
		Head of Communications & Marketing	17-Nov-2016	01:32:40			

		Project Manager (Metals, Manufacturing)	25-Oct-2016	56:03			
		Project Manager (EMS) 1 [Session 1]	20-Oct-2016	01:14:00			
		Project Manager (EMS) 1 [Session 2]	16-Nov-2016	36:46			
		Special Programmes Co-ordinator	20-Oct-2016	37:01			
		Multiple Participants	18-Nov-2016	05:37			
		Project Manager (SAG)	26-Oct-2016	50:01			
		Project Manager (Tourism)	21-Oct-2016	36:46			

		Project Manager (EMS) 2	25-Oct-2016	01:29:34			
		Project Manager (Agro-Processing)	24-Oct-2016	57:11			
		Project Manager (EMS) 3	27-Oct-2016	01:01:00			
		Senior PM/Regional Manager (Durban)	07-Oct-2016	01:28:17	Phone		
		Senior PM/Regional Manager (Cape- Town)	30-Oct-2016	35:53	Face-to- Face		
		Director of Skills & Training	14-Nov-2016	32:18			

	Preliminary Interviews						
	United Nations Industrial Development Organization (UNIDO)	Chief Technical Advisor	25-May-2016	01:00:12	Phone	1 day	Corporate Website
		Unit Chief, Industrial Resource Efficiency	08-Jun-2016	57:02		1 day	
	National Cleaner Production Centre – South Africa	Project Manager (Industrial Symbiosis)	15-Jun-2016	55:45	Phone	1 day	Corporate Website
	Kenya National Cleaner Production Centre	Project Manager (Industrial Symbiosis)	10-Jul-2016	37:35	Phone	1 day	Corporate Website

Table 5.2: Engagement with intermediaries

5.3 Expert Interviews

A summary of the guiding questions for the expert interviews is presented in Table 5.3. Although interviews were semis-structured, the list presented in Table 5.3 represents the core of the discussion.

Q1. Why has this intermediary achieved its current success in delivering effective support services to SMEs? OR what factors do you consider to be most important for your organization to deliver effective services?
Q2. Despite the commonly identified barriers to cleaner production uptake – e.g. low awareness, limited finance, and low management commitment – why do you think SMEs implement your organizations recommendations?
Q3. Why might some of the SMEs you engage with implement your recommendations while others might not despite your adopting similar engagement approach?
Q4. How do you try to scale-up your impact so it reaches more companies?
Q5. How do you sustain the impact after project funding runs out?
Q6. How do you select the SMEs you engage and how has the selection process influenced your impact?
Q7. It is commonly highlighted that tailoring the engagement process to suit individual SMEs is important. How do you try to do this in your service delivery process?
Q8. There is a growing local community of social innovation and social entrepreneurship. If at all, how are you collaborating with them to improve your programme impact, or what potential opportunities are you exploring?
Q9. What key challenges do you face in making lasting impact in the SMEs you engage?
Q10. What two key recommendations would you make for addressing the challenges in Q9?

Table 5.3: Interview guiding questions

Questions in table 5.3 were not always asked in their exact order across all interviews; however, a few patterns remained constant. As an example, the opening question for most interviews was the question #1. Although this question may be considered a “leading” question because it assumes that the intermediary has achieved some success, it was however considered a useful ice-breaker. Its open-endedness was intended to encourage expressiveness; while its positive undertone was to allay the prejudices, misconceptions or mistrusts interviewees sometimes hold during

interviews. For most cases, this ice-breaker plot succeeded. Another pattern that was maintained across all interviews was the reservation of questions about major challenges till the later parts of the interview. This arrangement is grounded in the researcher's previous experiences of successful interviews: interviewees tend to be more open in discussing challenges after an elaborate conversation about successes. Using familiar terminology, e.g. cleaner production as opposed to theoretical equivalents, e.g. "industrial sustainability" was also considered critical in crafting questions. While table 5.2 presents mostly generic questions, there were a number of instances where specific questions relating to specific aspects of the organization or its national context were asked. Some of these emerged as follow – up questions to those in table 5.3, while others were asked independently. Examples include:

- *The Uganda Manufacturers Association runs an energy efficiency training programme similar to yours, and their target audience are the same as your audience. How does this influence your services and impact?*
- *You are involved with the RECPnet which is intended as a platform for knowledge exchange and collaboration among RECP service providers and intermediaries. In what specific way has this network improved your impact on SMEs?*

Together, the techniques highlighted so far – asking ice-breaker question, thoughtfully sequencing questions, using familiar terminology and asking follow-up questions – helped to gain both depth and breadth throughout the interview process.

5.3.1 Rationale and Implications of semi-structured Interviews

Semi-structured interview was chosen for three key reasons. First it allows the researcher to discover and explore new ideas fully by asking open-ended questions. Second it aligns with the principle of grounded theory research which requires that a flexible approach be taken in designing and implementing data collection (Glaser and Strauss, 1967; Glaser, 1992; Charmaz, 2014). Flexibility is critical in grounded theory to ensure collection of additional data is informed by the analysis of existing data. In this study the flexibility of a semi-structured interview allowed additional questions, i.e. follow up questions, to be asked when new data was required. In certain instances, where a number of questions required replacement or reframing (e.g. when expert has already addressed the given question in a previous response), a semi-structured

approach ensured such modifications were possible. Third reason for a semi-structured approach is that it provides a sufficient level of comparability between interview data sets.

Questions 2 and 3 on Table 5.3 – are considered interchangeable. The essence of both questions (and more broadly speaking all questions on Table 5.3) is to elicit the factors determining intermediary performance. A semi-structured interview approach allowed either of these two questions or both questions to be asked or replaced depending on insights from previous responses. This explains the why rows for Q2 and/or Q3 are unpopulated in Appendix A Tables I-IVa.

The alternatives to semi-structured interview are the structured and unstructured interviews. Either approach is considered unsuitable for this study. A structured interview requires developing a predefined set of questions with no room for flexibility regardless of outcomes of previous data collection. This contradicts the tenets of grounded theory research and significantly limits the opportunity for making any new discoveries (Charmaz, 2014). A structured approach also requires that questions be grounded in a theoretical framework found in existing literature. However, it has been established in Chapter 2 that a substantive theory of intermediary performance determinants in developing countries is missing. The topic has remained under-researched, hence, there are no known established frameworks with which to build structured interview questions. The unstructured interview approach may be considered a plausible alternative. However, this approach poses significant challenge to tracking the development of ideas between respondents and intermediaries. Unstructured interviews hinder comparability and the opportunity to triangulate data.

The implications of adopting a semi-structured approach include the potential to discover new ideas and explore such ideas fully – until saturation is established. A semi-structured approach implies there may be limitations in direct comparability between responses of interviewees. In instances where a question has been replaced or modified for one expert or intermediary and not for the other (e.g. as with Q2 and Q3), establishing direct parity between responses becomes challenging. However, the goal of discovering new theory is the priority of this study. Although achieving direct comparability between all interviews may be challenging, all emerging ideas are triangulated between experts (Section 3.8)

5.4 Desk Research

National environmental targets of the four countries in this study are summarized in Table 5.4. Environmental targets are provided in terms of intended nationally determined contributions to greenhouse gas emission reduction, a commitment bolstered by the 2015 Paris climate conference. A range of other environmental targets may be considered, e.g. air quality, deforestation, radiation, wastewater and ocean-acidification reduction targets. However, GHG emissions arguably represent the most prominent environmental target today. Of all four countries investigated, only South Africa specifies its emission targets in absolute terms

	South Africa	Uganda	Ghana	Kenya
Greenhouse (GHG) emission reduction	Limit (GHG) emissions including land use, land use change and forestry (LULUCF) to between 398 and 614 MtCO ₂ e over the period 2025–2030.	Lower GHG emissions by 22% relative to a business-as-usual (BAU) emission scenario of 77.3MtCO ₂ e by 2030	Lower GHG emissions by 15% relative to a business-as-usual (BAU) emission scenario of 73.95MtCO ₂ e by 2030	Reduce GHG emissions by 30% by 2030 relative to the BAU scenario of 143 MtCO ₂ e

Table 5.4: Key environmental targets of countries engaged in this study in terms of GHG reduction (Source: UNFCCC, 2019)

Sections 5.4.1 to 5.4.4 summarize contextual details of the four NCPCs engaged during desk/secondary research phase of this study.

5.4.1 Intermediary #1: National Cleaner Production Centre – South Africa (NCPC-SA)

Total number of interviews: 17 (including 17 from NCPC-SA)

National Context:

Since 1994 when it abolished the apartheid system of government and became a democracy, South Africa has implemented a broad range of industrial policies to foster growth and competitiveness. Currently, South Africa is one of Africa's largest economies and is considered the most industrialized in Africa. The country has a population of 56 million and a GDP per capita of US\$5,299 (World Bank Statistics, 2016). South African industries are distributed across its nine provinces. The Gauteng province is home to major economic hubs including Pretoria and Johannesburg.

Although Gauteng is the smallest province by land area, it is responsible for a third of South African GDP, 10% of total sub-Saharan African GDP or 7% of the entire African continent's GDP. Eastern Cape, a coastal province of South Africa has a high concentration of automotive industries with significant investments from top brands such as Volkswagen, Daimler-Chrysler, Ford, General Motors, Nissan, BMW and Toyota. The contribution of manufacturing to South Africa's GDP and employment has declined since 1994 from about 21% to about 13% in 2016. In absolute terms however, manufacturing output has grown beyond its 1994 levels at an average 2.8% per annum. Although the manufacturing sector is relatively diversified, a few large sub-sectors are dominant namely chemicals, metals and machinery, and food processing. The service sector has grown much faster than manufacturing with financial and business services, taking a lead.

South Africa has experienced a shift from tradable sector in terms of mining, agriculture and manufacturing towards non-tradable sector, particularly financial and business services. South Africa's industry heavily depends on coal, and in 2009 the country was ranked the world's 13th greatest CO₂ emitter by the International Energy Agency. As part of its efforts to green its industries, the country has implemented initiatives to promote renewable energy investments, energy efficiency and other green economy measures. South Africa has one of the highest unemployment rates in the world at 27%, while its youth unemployment is much higher at over 50%. The country also has one of the highest income inequalities in the world with a Gini coefficient of 0.69 recorded in 2014.

In 2007, South Africa adopted the Industrial Policy Action Plan (IPAP) in its bid to develop industries and drive down the prevailing high levels of unemployment and

poverty. This action plan has its foundation in the country's National Industrial Policy Framework which was adopted earlier in 2007, and is being managed by the South African Department for Trade and Industry (dti).

The National Cleaner Production Centre of South Africa (NCPC-SA) was launched during the 2002 Johannesburg World Summit for Sustainable Development (WSSD). NCPC-SA's mandate is to support in building the manufacturing industry's competitive capability through appropriate resource efficiency service offerings and competencies. With financial assistance from the South African Department for Trade and Industry (dti) and governments of Austria and Switzerland, the centre began as a co-operation programme between South Africa and UNIDO. The Centre's local host is the CSIR (Council for Scientific and Industrial Research), Materials Science and Manufacturing Operating Unit.

Since its establishment, NCPC-SA has become fully integrated into dti's custodianship, and has expanded considerably in terms of staffing, budget, service portfolio, and its sector/industry coverage. The Centre has offices in Pretoria, Durban and Cape Town office with ongoing plans for further expansion, e.g. to Port Elizabeth in the Eastern Cape Province. The Centre's services split along four thematic areas – energy, water, waste and materials. Similar to other NCPCs, NCPC-SA offers services such as training & capacity development, assessment, in-plant demonstration, and awareness raising. The Centre is a member of the global Resource Efficiency and Cleaner Production network (RECPnet), and it continues to play a leading role in the ARSCP (African Roundtable on Sustainable Consumption and Production) and other similar forums. Recent publications state that the centre has helped to save 1800GWh of energy, and R1.45B (\$122.4M) in energy costs.

Interview responses at NCPC-SA and related organizations are analysed in Appendix A Tables I (a) – (c).

5.4.2 Intermediary #2: Ghana National Cleaner Production Centre

Related organizations: Association of Ghana Industries, United Nations Development Programme, Ghana Ministry of Trade and Industry, Impact Hub Accra, British Council (Ghana), United Nations Environment Programme, SAG Networking Forum

Total number of interviews: 13 (including 2 from GNCPC)

National Context:

Bordered by Togo, Cote d'Ivoire, Burkina Faso and the Atlantic Ocean, Ghana is a coastal country located in Africa's western region. The country has a population of 28 million and a GDP per capita of approximately US\$15000 (World Bank Statistics). Industry makes up around 28% of Ghana's GDP and is the second largest sector after services (Newman et al, 2016). Since the 1980s Ghana has mainly experienced positive GDP growth rate, and in 2010-11 it moved from a low-income status to a lower middle-income bracket. The number of industrial establishments have grown significantly since the late eighties, and 90% of these establishments belong to the manufacturing sub-sector. The industrial sector is made of 94 % small and medium scale enterprises. Industry accounts for 15% of employment in Ghana.

Most industries are concentrated in the Greater Accra region followed by Ashanti. Both account for 50% of total industry establishments in Ghana (Newman et al, 2016). Ghana is host to one of Africa's largest light manufacturing clusters – the Suame-Magazine – located in the Suame area of Kumasi. Approximately 10,000 micro- and small enterprises and workshops are based here, with most engaging in automobile repair and spare-part services (Newman et al, 2016). There are also industrial zones set up by the Ghana Free Zones Board mainly to serve as Export Processing Zones (EPZs). These include EPZs in Tema, Sekondi, and Shama, as well as the technology park in Ashanti. The free zones are host to around 300 enterprises which cut across manufacturing sub-sectors including wood and veneer processing, food production, oil seeds, lubricants and biofuel processing.

In the early post-independence days textile manufacturing played a dominant role in Ghana's light industries. However, beginning from the early 80s textile manufacturing began to dwindle. This was partly due to the wave of trade liberalization policies that engendered increased textile importation to the detriment of local production (Newman et al, 2016). Following the discovery and subsequent exploration of crude oil in Ghana's western region, it is expected that more oil servicing enterprises will emerge in the Shama EPZ. Manufacturing and construction sub-sectors are predicted to experience the most growth. Much of this growth is driven by oil production which would see the emergence of manufacturers of oil-related products including fertilizer, LPG (liquid petroleum gas) and petrochemicals, as well as construction companies specialized in oil & gas and petrochemical facilities.

Policies relating to sustainability in industry in Ghana are founded on the country's first environmental policy framework enacted in 1995. The framework identified the Environmental Protection Agency of the Environmental Protection Agency (EPA) of the Ministry of Environment, Science Technology and Innovation (MESTI) as the lead agency for policy implementation. Ghana National Cleaner Production Centre was established as a subsidiary of the EPA to support industries – particularly SMEs – in implementing measures prescribed by the environmental policies. The Centre's mandate includes awareness raising, training & capacity building, in-plant CP assessments, technical assistance on CP implementation, and policy advice.

Although it was inaugurated early 2012, the Ghana National Cleaner Production Centre became registered an autonomous entity limited by guarantee in 2014. Since its inauguration, the Centre has run programmes on resource efficiency, cleaner production, as well on specialized areas including biogas technology implementation, e-waste management, and industrial symbiosis. The Centre is a member of the global Resource Efficiency and Cleaner Production network (RECPnet), and it works in collaboration with UNIDO, UNEP and other international partners.

Interview responses at GNCPC and related organizations are analysed in Appendix A Tables II (a) – (c).

5.4.3 Intermediary #3: Kenya National Cleaner Production Centre [KNCPC]

Related organizations: ARSCP (African Roundtable on Sustainable Consumption and Production), National Environmental Management Authority, National Environment Trust Fund (NETFund), Kenya Industrial Research Development Institute, Kenya Geothermal Development Commission, GearBox, Kenya Climate Innovation Centre, UNDP – SAG Grantees Quarterly Meeting, Kenya Private Sector Alliance, NEMA-KNCPC Industrial Symbiosis Workshop

Total number of interviews: 16 (including 7 from KNCPC)

National Context:

Since its independence in 1963, Kenya's industrial history has undergone different policy regimes. In the early post-independence days, import substitution strategy where government providing direct support and tariff protection to industry was the

dominant strategy. This soon evolved as Kenya experienced external shocks which prompted its government to take more active role in running industries. Government-controlled industries however suffered from challenges of low competitiveness which prompted a series of structural adjustment and liberalization policies in the 80s and 90s. These policies have further evolved since the turn of the millennium (Newman et al, 2016). Currently, Kenya's economy is one of the biggest in eastern and central Africa with a per capita GDP of US\$1,587 and a population of over 48million. With the US enactment of AGOA (African Growth Opportunities Act) in 2004 which enhanced African exports into the US, Kenya had a rejuvenated opportunity for industrial growth. Other factors including the revival of the EAC (East African Community) trade and Kenya's increased participation in COMESA (Common Market for Eastern and Southern Africa) led to a resurgence in the country's industrial growth. Kenya is currently responsible for a significant flow of FDI (Foreign Direct Investment) and export to Uganda and Rwanda (Newman et al, 2016).

The industrial composition in Kenya has undergone minimal change despite evolution in industrial policies. Industries include agriculture, forestry & fishing, mining & minerals, manufacturing, energy, tourism and financial services. FBT (food, beverages, and tobacco) or agro-processing has remained the dominant industrial sub-sector and includes industries such as grain milling, beer production and sugarcane crushing. Manufacturing is the third biggest contributor to Kenya's GDP after transport & communication, and agriculture & forestry. Manufacturing in this country generally has less value-added compared to countries like South Africa, Mauritius, Malaysia and Singapore. However, within the east African context, i.e. compared to Uganda and Tanzania, the value-added is high. Kenya's three largest cities – Nairobi, Mombasa, and Kisumu – have the greatest concentration of industries. A noteworthy trend in Kenya is that as its formal sector continue to grow in Kenya, so has the informal. The latter includes the wide pool of semi-organized small and micro entrepreneurs mostly in rural areas who engage in some economic activity under minimal regulation.

The government of Kenya under its framework with UNDP established the Kenya National Cleaner Production Centre (KNCPC) in 2000 as a project. KNCPC is hosted by the Kenya Industrial Research and Development Institute. A range of key national frameworks formed the basis for KNCPCs establishment including the National

Poverty Eradication Plan (1997), the National Environment Action Plan (1994), the draft Sessional paper on Environment and Development (1997) and the Environmental Management and Co-ordination Act (1999). The Centre was charged with a mandate to promote RECP (resource efficiency and cleaner production) in industries in order to improve their competitiveness and environmental excellence. Similar to other NCPCs, KNCPC delivers its services in four key areas – training & capacity development, in-plant demonstration, awareness-raising and policy advisory. KNCPC is also a member of the global RECP network, and plays a key role in regional networks, most notably the ARSCP (Africa Roundtable on Sustainable Consumption and Production). Interview responses at KNCPC and related organizations are analysed in Appendix A Tables III (a) – (c).

5.4.4 Intermediary #4: Uganda Cleaner Production Centre [UCPC]

Related organizations: OutBox, NFT Mawazo – two social impact hubs running accelerator schemes on eco-solutions)

Total number of interviews: 11 (including 6 from UCPC)

National Context:

Often referred to as the *Pearl of Africa*, Uganda is an African country located in the eastern region of the continent. Uganda is a developing country with a population of 41 million and a GDP per capita of US\$615 (World Bank Statistics, 2016). Industry in Uganda is limited. Its most important sectors include light manufacturing of consumer goods, beverages, textiles and cement. About 80% of Ugandan population are said to live in rural areas many of them working as peasant farmers. (Newman et al, 2016). When the country gained independence in 1962, agriculture accounted for 60% of its GDP. The GDP share of manufacturing has remained relatively low with only marginal increase between the mid-1980s and post-2000s (Newman et al, 2016). The country's export to GDP ratio has not grown since 2008 (Newman et al, 2016). While the country's economy has remained largely agro-based, copper mining also played an important role in Uganda's economy especially in the 60s. There has been a major wave of privatization, with national entities such as the Dairy Corporation with an annual turnover of US\$12M undergoing full privatization. GDP growth averaged 6.5% per annum in the 90s and 2000s while population has doubled over the same period

(Newman et al, 2016). This growth is however not associated with increasing industrialization.

Ugandan industry is mainly composed of construction, mining, light manufacturing, and utilities supply sectors (Newman et al, 2016). SMEs comprise 90% of industries with more than half employing less than ten people (Newman et al., 2016). In terms of geographical distribution, the eastern town of Jinja was Uganda's main industrial hub in the 1960s and 70s. However, this has since changed to Kampala. Except in grain milling, coffee and tea processing, Kampala now has the highest concentration of manufacturing industries in Uganda. Uganda's eastern region leads in grain milling while the western region leads in tea production. Coffee is mostly produced in the central region. The northern region has typically been a source of labour; however, it does not specialize in any sector.

The principal environmental policy framework in Uganda is the 1995 National Environment Statute. The country's National Environmental Management Authority established in 1996 is the primary agency charged with overseeing compliance with the policy. Guidelines on waste management have been developed based on the environmental policy framework, and some of these guidelines recommend the adoption of cleaner production as a means of achieving compliance. Uganda was host to the first regional meeting of the Switch Africa Green programme – an EU-funded initiative that promotes sustainability across various spheres of economy.

To support the transfer of cleaner production know-how and technology as well as to support government in implementing cleaner production-based policies, the Uganda Cleaner Production Centre was established. With initial funding from governments of Austria and Norway, UCPC was set up in 2001 and is hosted by the Uganda Industrial Research Institute located in the country's capital city of Kampala. Services rendered by UCPC include technical assistance in eco-design, ISO14000, and eco-efficiency. Its flagship programme – the eco-benefits programme – has helped to raise awareness, provide cleaner production assessment and technical advice to range of companies. UCPC is a member of RECPnet and one of the implementing partners of the Switch Africa Green Phase I along with other local organizations including USSIA (Uganda Small Scale Industries Association), MTIC (Ministry of Trade, Industry and Cooperatives) and DWRM (Directorate of Water Resources Management) at the Ministry of Water and Environment.

Interview responses at UCPC and related organizations are analysed in Appendix A Tables IV (a) – (c).

5.5 Limitations in Available Data

5.5.1 Expert Interviews

Four out of the 58 entries in Table 5.2, were interviews lasting less than 10 minutes:

1. Ghana Ministry of Trade & Industry, Industrial Promotion Officer (8:06);
2. UNEP, SAG Programme Co-ordinator (4:12);
3. Kenya Geothermal Development Commission (Kenya GDC), Environmentalist (8:31);
4. NCPC-SA, Multiple participants (5:37)

The first three interviews on the above list provided limited relevant information as indicated in Appendix A Table IIa (for 1 & 2) and Table IIIa (for 3). The interviews are however shown on Table 5.2 to preserve transparency in the data collection process. Standard qualitative research text recommends that researchers present results of qualitative data gathering as is, prior to further interpretation or manipulation.

The short duration of all four interviews above arose due to scheduling challenges. All interviews began as normal; however, they could not be completed because of emergencies demanding the expert's urgent attention. A classic scenario was when an interview session had just begun and a more senior colleague enters the room to fetch the interviewee for an urgent task. This was the case in #1 and #4. In numbers #2 and #3 interview was suspended after the experts paused to take phone calls. Challenges in data gathering are not unusual. In this study, care has been taken to minimize instances of interview scheduling challenges with only four out of 58 interviews affected.

A number of interviews lasting longer than ten minutes are found to have had limited relevance (Appendix A Tables Ia, IIa, IIIa and IVa). These are interviews which proceeded on the expectation that the expert could eventually offer clear insights on the topic. However, this expectation was not met for one or more of few reasons including:

- Expert has had limited prior experience with the NCPC
- Expert goes on extensive detour
- Interviewer spending most of the time trying to explain questions or concepts
- Interviewee not sufficiently expressive

Majority of the instances of limited relevance arise from interviews with experts outside the NCPC. The total number interviews with useful data across all four countries are:

- South-Africa - 16
- Ghana – 3
- Kenya – 7
- Uganda – 6

5.5.2 Desk Research

There is limited available data to replicate Figure 4.4 for the four countries explored in this research. Replicating figure 4.4 may be important for enriching the contextual view of the findings of this study. However, after an extensive attempt to identify the service mix of NCPCs, it was observed that relevant data was unavailable. Sources explored include:

- Documents cited by van Berkel (2010), i.e. the source of Figure 4.4
- Documents citing van Berkel (2010)
- A full review of documents on cleaner production programme published on UNIDO and UNEP websites
- A general desk research on “Service mix of National of National Cleaner Production Centres” using Google Search and Google Scholar
- A focused desk research on services of each NCPC engaged through the Centres’ websites
- Corporate documents made available to the researcher by each NCPC during the field visits
- A direct check with two UNIDO officers responsible for managing interfaces with NCPCs

The most plausible reason why figure 4.4 is available whereas there is limited data on service mix of NCPCs in general, is the one-off nature of the figure. Figure 4.4 is an

interpretation of the results of a one-off NCPC assessment exercise commissioned by UNIDO-UNEP in 2007 (see Figure 4 of van Berkel, 2010). The assessment exercise which spanned a one-year period included country evaluations in 18 developing and transition countries (see UNIDO, 2008). The list of 18 countries includes South Africa and Kenya but excludes Uganda and Ghana (UNIDO, 2008 p VI). Since the completion of this assessment there has been no recent assessment of a similar nature which provide data or an interpretation on service mix of NCPCs. This limitation in available data is acknowledged in section 3.10.

5.6 Key Learning

- Despite their similarities, NCPCs have unique characteristics that can be associated to the prevailing local conditions.
- Key distinguishing characteristics of the four NCPCs in this study are:
 - NCPC-Ghana – operating as a subsidiary of the country’s Environmental Protection Agency (a regulator); being one of the most recently established NCPCs
 - NCPC-South Africa – operating in one of Africa’s most industrialized economies; providing services from three different offices locations around the country; receiving full-scale financial support from the country’s department of trade and industry; and being a key partner for other departments such as department of energy.
 - NCPC-Kenya – operating in a country which may be considered a regional leader in east Africa’s industrial growth
 - NCPC-Uganda – operating in country which may be considered a hub of agro-processing industries
- There are limitations in quality and quantity of available data which arise from expert interviews and from desk research. The limitations identified in Section 5.5 may help to ensure that the research findings can be adequately contextualized.

6

Analysis

This chapter aims to show how results of the case study emerged and how reliability checks have been applied. The chapter includes four key sections: first section presents the themes identified across all four intermediaries. Second section compares themes across intermediaries offering insights on skew and possible contextual differences between intermediaries. The third section provides a qualitative assessment of reliability while the final section explores possible alternative arguments. Additional granular details on the emergence of themes are provided in Appendix A Tables I to IV. The chapter concludes with a summary of its key reliability arguments.

6.1 Theme Identification

Eighteen distinct themes were identified from interview transcripts across all four NCPCs. These are described below:

Theme #1: Intermediary's Neutrality

“We use the regulatory institutions very carefully ... I'm saying carefully involve them because we don't want to be seen as if we are in the same bed with the regulator. That has its serious implications. Because that means you will not access the details of the company. And once you cannot penetrate their data, you will not come up with good measures.” – [Uganda, Interview I]

“We ... want to be seen as a "carrot". Yeah. Because the more we associate with them [i.e. regulators] the more we shall be seen the "stick". And then people are likely to run away from us. They may keep there but they would not be free with us.” – [Uganda, Interview IV]

“We've got to be very careful as to what extent we share what we share because this is company information [i.e. case studies] ... at least they need to understand that we're exercising some level of control even though yes we're still sharing” – [South-Africa, Interview VI]

Intermediary's Neutrality is a common theme reflected by all quotes in box #1. A neutral intermediary would not work in a way that compromises the SME's competitive or confidential information nor reveal lapses to regulators. Intermediaries are careful to ensure they are perceived as neutral throughout their engagement with SMEs. Although quotes in the box are culled from cleaner production centres in Uganda and South Africa, the neutrality theme is only emphasized in Kenya (Table 6.1). Similar quotes from Kenya appear longer and less concise, thus not included box #1.

Theme #2: Intermediary's Resourcefulness

“NCPC wants to be a centre of excellence. If anybody talks about RECP in the country, I would like the first thing to be on the tip of anyone's tongue that has half a brain cell, is that they must say NCPC, and they must say ‘talk to those guys, they really know how to link you up and hook you up with the right people if they don't have the answers themselves.’” – [South-Africa, Interview XIV]

“We've invested in equipment for everything from the power quality analysers for boilers, for pumps, for fans, for everything. And every centre has a set of those equipment.” – [South-Africa, Interview V]

“... but those that did not have the power, to do training we decided to place a graduate [intern] ... We place them for twelve months in that company, and amazingly what we found that within six months fifty percent would be taken [i.e. absorbed] by those companies because then they see the value.” – [South-Africa, Interview I]

“If they know that you'd add value to their business, they would become much easier to convince them to come on board.” – [Uganda, Interview I]

Intermediary's Resourcefulness is a central theme reflected by quotes in box #2. Resourcefulness of intermediaries involves having expert knowledge, funds, contacts, equipment, information or other resources needed by the enterprises throughout the support Programme lifecycle. Resourcefulness involves understanding SMEs need and investing in addressing such needs. Often SMEs need financial support in addition to the information provided in sustainability support programmes. As one interviewee notes,

“And once they see that we've convinced them and they want to go in [i.e. commence implementation], they want to find out, one: who's going to finance it?” – [Ghana, Interview IV]

The importance of intermediary's resourcefulness is emphasized across all four cleaner production centres (Table 6.1). As intermediaries are limited in available resources partnering with complementary institutions to provide a holistic solution to SMEs is considered critical. A resourceful intermediary is able to attract a natural demand for its services, and would become a partner-of-choice for SMEs.

Theme #3: Intermediary's Accessibility

“Then we've not published ourselves out there. There're so many people, they've never heard of Kenya National Cleaner Production Centre and what we do. Sometimes we even receive calls: people asking if we register cleaners in this country” – [Kenya, Interview III]

“Till now some people think we're cleaners. They don't know what cleaner production is all about.” – [Uganda, Interview III]

“There are lots of people out there who can benefit, and who are not aware of this particular program” [South-Africa, Interview X]

“We need to have a robust team of marketers” – [South-Africa, Interview IV]

“I'm hoping by December, we would have two people: ... one from Pretoria and one from Cape-town to go and have offices in Port-Elizabeth so that they could help the automotive industry directly sitting there.” – [South-Africa, Interview I]

Intermediary's Accessibility emerges as a central idea between intermediaries as indicated by quotes in box #3. Intermediary's accessibility involves having services which industries are aware of and are able to engage with. Intermediary's accessibility requires having a visible presence within the locations and networks where the small enterprises operate. It also involves providing services at a subsidized rate and having personnel dedicated to enterprise engagement. With the exception of Ghana, all cleaner production centres emphasized an ongoing drive to improve the ease with which industries can access their services. A quote from Ghana reveals a slight difference with other centres:

“There is nobody in this country that has access to private sector than we have, and that has control over private sector than we have.” – [Ghana, Interview IV]

Although the case of Ghana indicates the cleaner production centre already enjoys a desirable level of accessibility, it does not preclude or diminish the importance of accessibility as a core aspect of the intermediary’s performance.

Theme #4: Relevance of Content

“When you're speaking to industry, don't talk to them about carbon counting, don't talk to them about reaching national targets. Lightly put, they don't care! National targets are not their problem, national target's a government problem. Talk to government about government problem, and talk to industry about the stuff that they face every single day.” – [South-Africa, Interview III]

“People sit up immediately you begin to talk to them about ‘this should not be waste. It should be a resource’” – [Ghana, Interview IV]

“When we speak to business, we speak the business language. We talk to them about saving their bottom-line. So all the green studies – feel good tic-tic-tic ... and talking about the number of planets that we need to sustain ourselves and our children and our grandchildren – they like it. But they cannot build an income statement on it.” – [South-Africa, Interview III]

“The messaging that the NCPD has used has been less environmental and more business-focused. So we generated a catch-line if you like in 2012-2013 which we've used for a couple of years called ... ‘increased profitability through resource efficiency.’ It's about the profit ...” – [South-Africa, Interview III]

“So you have to lay out that roadmap for them. I find that it becomes very helpful for a lot of companies because sometimes it can be too overwhelming especially for companies that don't have resources” – [South-Africa, Interview XI]

Relevance of Content is a theme captured by quotes in box #4. Content can be thought of as the information, tools and methodologies provided to SMEs. This includes the business case for sustainability, successful examples of previous implementation, information about available services, and the recommended methodology, tools, or solution. For content to be relevant, it must match the enterprise’s motivation, objectives, and resources. Relevance of content involves the use of appropriate

language and the tailoring of solutions to suit existing resources, processes and structures of the SME. The critical role played by content relevance is emphasized in three countries (Table 6.1).

Theme #5: Effectiveness of Content

“They want to know that a company sitting in Pretoria, same vicinity as the company, exposed to the same challenges, has been able to achieve the success ...” – [South-Africa, Interview VI]

“You cannot convince industry or government ... in terms of adopting the principles and the methodologies and the tools; ... unless you have good case studies or good test pilot cases that gives them the understanding. So we went out to really for each project ... each three projects we ran ... to a level of building a case study, and proving the relevance of the methodology and the technique and the skills of how that adds value to the economy.” – [South-Africa, Interview I]

“... the workability of the solutions we offer is very critical to us being taken seriously” – [Ghana, Interview V]

“I’ll give you a very good example. We have a project we’ve worked within Lake Victoria Basin... We gave them [i.e. previous clients] a platform to share what they’ve managed to gain by participating in some of our programmes ... Most of those that were sitting on the fence eventually came in.” – [Kenya, Interview III]

“When you’re really asking them to pay for something that they are not very sure of, they tend to shy away from it” – [Uganda, Interview VI]

Effectiveness of Content: Effectiveness refers to the ability of provided information or solution to yield desired benefits when applied. While it is important for content to be relevant and convincing, SMEs tend to improve their commitment to sustainability if the solution provided by the intermediary can be effective meeting the enterprise’s short-term objectives. Three intermediaries out of the four studied emphasize the criticality of an effective content. Effectiveness may be demonstrated through case studies and through peer testimonies. Effectiveness is also demonstrated through low-to-no-cost options otherwise referred to as low-hanging fruits. SMEs benefitting the positive impact of implementing low-hanging fruits have greater probability of engaging in further in sustainability programmes.

Theme #6: Resource Availability in SME

“*Aveng Mining* wanted to do EnMS [i.e. Energy Management System implementation] with me for the last year. And I came, had meetings with them. I told them nope, you're not ready. They've come back, talked about it, Nope you're not ready ... And the reason why is: you don't want to go into a company and start spending 150-160,000 Rands and within six months of implementing people are fired” – [South-Africa, Interview XIII]

“Sometimes the staff are not trainable. They are not trainable. You have some industries where you go; you start talking to the staff; you can clearly see that this staff cannot be trained because what we are talking about is far [i.e. inaccessible]” – [Uganda, Interview I]

“And once they see that we've convinced them and they want to go in, they want to find out, one: who's going to finance it?” – [Ghana, Interview IV]

Resource Availability in SME is a theme expressed by intermediaries in this study. Resources include finance, skill and time and proper organizational processes and structures. Resource availability is further nuanced by attributes such as consistency, trainability, affordability. Although SMEs management may show commitment towards sustainability support programmes, there are challenges faced during implementation due to the absence of adequate or proper resources. The ability of the intermediary to provide complementary resources to support the SME during implementation Programme is critical. SME's resource availability is emphasized in two out of four countries.

Theme #7: Level of Organizational Commitment in SME

“But in Uganda, most industries don't value training time. They look at their manufacturing as being more important than any other time that you could be spending, for example carrying out preventive maintenance or trainings” – [Uganda, Interview I]

“Companies would start; they'd start implementing the EnMS. Then three to four months into it, the people would stop attending webinars” – [South-Africa, Interview XIII]

“What we do is we go and we drive the commitment from the top down. I have met with a lot of companies and somethings failed with them because I meet an engineer or a process engineer on the site, and they tell me yes, we

need to do this, we need to implement it. And everyone's enthusiastic, they start doing it; and here comes the manager: 'what are you doing here? I have more important things to do, energy? No, no, no, we keep this plant running. Don't worry about the energy.'" – [South-Africa, Interview XIII]

"Sometimes it is the governance issues. You know when a system is not working, be sure there are individuals benefiting from those weaknesses" – [Uganda, Interview I]

"We have some difficult industry in South Africa. And I'm going to speak about the cement industry specifically and the steel industry. You have these huge organizations with tiers of management like you'll never believe - very top-heavy. And one of the problems I experience personally is that when you engage with industry of that scale, you need buy-in and commitment on so many different levels in order for things to work." – [South-Africa, Interview XIII]

Level of Organizational Commitment in SME. This construct captures the level of motivation for sustainability-oriented change within the SME. An SME with a high commitment would be willing to dedicate resources – time, financial, personnel – towards implementation. Intermediaries find it critical to establish a level of commitment in the SMEs before engaging with them long-term. SMEs seeking to urgently comply with pending environmental regulation or those seeking to attain a quality standard such as the ISO140001 often show more commitment to support programmes. For such SME there is strong drive towards the support Programme which resonates throughout the enterprise. For larger enterprises with multiple layers of management, commitment is required on all levels. Lack of commitment may arise due to competing priorities. As noted by an interviewee in Uganda, lack of commitment may also arise due to corruption as certain members of an enterprise may be benefitting from a dysfunctional system and be antagonistic towards positive change.

Theme #8: Public awareness

"I believe that the biggest challenge here is just one: People are still not yet conscious about driving the sustainability agenda. People are still seeing it as not-so-serious issue." – [Kenya, Interview IV]

“People could be practicing issues on sustainability without consciously or without really understanding that what they are doing are issues on sustainability.” – [Kenya, Interview I]

“We come from a country where you know the meddling between economic and environment is not very well appreciated” – [Kenya, Interview V]

Public awareness is a pervading theme between quotes in box #8. It shows that the general level of public awareness is an important area of concern for intermediaries delivering sustainability support programmes. Where awareness level is low, it is challenging for intermediaries to engage with SMEs and other stakeholders. Public awareness cuts across the SMEs’ customers, their local community and employees. It may be argued that the general level of awareness of sustainability issues varies from region to region and depends on the sustainability detail involved. Intermediaries also noted the presence of low awareness among government stakeholders

Theme #9: Regulatory Pressure

“... because of ... the combination of regulatory and what we call the compliance promotion and compliance enforcement, we are never lacking clients to work with” – [Ghana, Interview IV]

“Actually we do chase the companies because you can find a company with very big potential for improvement, but the top management are not committed ... sometimes we have to work closely with the regulators” – [Uganda, Interview I]

“But if you come with NEMA - the environmental law enforcement agency - they’ll listen to you, because that is backed by law” – [Kenya, Interview II]

Regulatory Pressure is a thematic area of interest for intermediaries as reflected by quotes in box #9. Regulatory pressure constitutes an element of the SME’s external context. While some countries may have well defined regulatory policies with adequate implementation structure, others have it less developed. Regulatory policies can be complex and can pose significant challenges to SMEs. Often SMEs are unaware of regulations or are unable to respond effectively, thus making it important to provide support programmes. However, intermediaries need to ensure their programmes are in full alignment with the relevant regulations. In the case of cleaner production

centres, there was particular emphasis on the need for regulations that mandate application of the RECP (Resource Efficiency and Cleaner Production) methodology. Regulatory pressure could include industrial policies, environmental policies, energy policies or labour policies. Regulations may appear at different levels of maturity in different countries, and may evolve with time.

Theme #10: Flexibility of Engagement Process

“... different strategies work for different people. Sometimes I go straight to talk to the head of the company depending on how easy it is to access the office ... Sometimes I go into a company through the sustainability manager if they have. Sometimes, it would be through the engineering manager. Sometimes it could be through the word of mouth. I've had instances where I've done work in one company, and word of mouth spread and then another company contacts me to come and present for them. So different engagement strategies, different it works differently depending on the case - the nature of the company.” – [South-Africa, Interview XI]

“We don't take fee upfront. Because we feel like the value we're offering must show. So we are ready to stick our necks out to tell you that these options we are offering you would pay off. So when you start reaping your dividends, pay us something.” – [Ghana, Interview V]

“so in [in] those kind of cases, it's so important to have redundancy in an organization where you speak to this person, you speak to his boss, you speak to the boss's boss, the boss's boss's boss.” – [South-Africa, Interview XIII]

“... but those that did not have the power, to do training we decided to place a graduate [intern] ... We place them for twelve months in that company” – [South-Africa, Interview I]

“And people, you have to nurse them according to their particular character if I can put it that way.” – [South-Africa, Interview II]

Flexibility of Engagement Process is a theme which cuts across the quotes in box #10. When recruiting SMEs to programmes, flexibility involves tailoring the method of reaching out to SMEs to suit the existing circumstances of the enterprises. While some SMEs are better reached through direct personal contacts, others respond better to industry associations. Being flexible requires an intermediary to make an assessment of its SME audience in terms of how best to reach them, e.g. through news media, through industry associations, direct contact, etc. In the service provision and follow-

up stages, flexibility means being prepared to tailor solutions to suit individual SMEs depending on available structures and resources.

Theme #11: Efficiency of Engagement Process

“Ask NEMA. NEMA sometimes even wonder we are a small staff but we do a lot of work” – [Kenya, Interview I]

“We give priority to those who are saying we are willing and able to implement” – [Uganda, Interview V]

“So you need to be very choosy and it's something we haven't done in the NCPC before because everyone wants to meet their KPI, everyone wants an assessment” – [South-Africa, Interview XIII]

“We train a lead person who will go and train others” – [Kenya, Interview II]

“There're some companies that are not worth pursuing because you're forever hitting a brick wall. That you need to accept. Get them off, move on, don't invest your time in those companies.” – [South-Africa, Interview II]

”I would try organize workshops - IEE workshops or energy efficiency workshops and invite associations because I realised that inviting individual companies is just too much effort for very little result” – [South-Africa, Interview V]

Efficiency of Engagement Process. Box #11 offers an insight into expressions of the need for efficiency in the intermediary's Programme delivery process. Efficiency involves adopting practices that allow Programme objectives to be delivered on time, on budget and with appropriate quality. Such practices as SME clustering, opening new offices near industrial zones, thoroughly screening SMEs to engage with, and subcontracting to private consultants when necessary, can significantly affect efficiency of Programme delivery. Certain practices may appear counter-intuitive while an intermediary is being efficient. An example of such is the screening out of SMEs from participating in programmes. This practice may appear contradictory to Programme objectives, in terms of supporting as many SMEs as possible. However, due to factors such as low management commitment, high staff turnover, and inconsistent participation in previous programmes, an intermediary may apply strict screening during recruitment. This ensures Programme resources are channelled towards viable

ends. Efficiency of engagement process is emphasised in two countries. However, the practices leading to improved efficiency varies between countries.

Theme #12: Sustainability of Impact

“We train a lead person who will go and train others ... so that even after the project they continue implementing” – [Kenya, Interview II]

“... and using external people to conduct assessments further created that awareness and depth within industry and started you know creating a knock-on effect” – [South-Africa, Interview XV]

“The third one was to create an environment where industry itself must reach a point where it ... sustains the processes without us. So run ourselves out of the job ... For example, every company we help, we ... decided we must train a minimum of three people in that company to an expert level that they would not need us in two years or three years, and that helped a lot.” – [South-Africa, Interview I]

“It's high time industries also need to know that KNCPC doesn't just provide the service; it's a long-term solution. Us – we do follow-ups to our clients and see how he's well faring on.” – [Kenya, Interview III]

Sustainability of Impact is a theme represented by quotes in box #12. Sustainability of support program's impact is key a concern for intermediaries as their engagement with industries tend to be project-based. By end of each project, it is often unclear whether or how the trainings, awareness-raising, demonstration exercises, audits or other forms of support provided during the project, would lead to lasting change within the SME. A key approach for addressing this concern is to develop capacity of SME staff as well as to develop a cadre of local experts who can continue supporting SMEs in the capacity of a private consultant. As is the case in South Africa and Ghana intermediaries also work with higher institutions to develop accredited curricula on sustainability for industries. This helps to secure sustainability for the impact being made. Sustainability of impact is emphasised across all four countries.

Theme #13: Intermediary's Evolutionary Stage

“I'm guessing that in the next financial year, we would start to see KPIs again looking slightly different again from this year which also, this year's KPIs will look slightly different to last year” – [South-Africa, Interview XIV]

“NCPC has changed over the years in terms of what we're driving. A lot of the initial ... years of NCPC has just been about ‘do an assessment, and you pass the report’. But since I've been part of the NCPC, I hear a lot more talk around impact-impact-impact. So the focus of NCPC has also evolved ...” – [South-Africa, Interview XI]

“We are moving on that direction to try and get better involvement and more regular and frequent follow-up.” – [South-Africa, Interview XIV]

“We're also finding that a lot of donor funding or funders are beginning to ask us to relate to them directly. In the past donor funders will come and interact with us through UNIDO or through UNEP or through government departments. We're now beginning to interact with them directly and signing agreements and they're funding projects directly” – [South-Africa, Interview I]

“...The fact that it was a UNEP-UNIDO initiative (since 2000) and has today not been integrated as a government department presents very glaring challenges for the centre” – [Kenya, Interview V]

“We need to reinvent ourselves to a point where all the 5,000 or 10,000 people who have trained can begin to do a lot of our work as business. So these consultants, these engineers can set up mini-NCPCs or offer services at a fee to industry or to government.” – [South-Africa, Interview I]

Intermediary's Evolutionary Stage is reflected by quotes in box #13. Intermediaries are evolving entities. Due to changes in sponsor or partner requirements, changes in SME demands and changes in national priorities intermediaries are in a constant adaptation process. As an example, intermediaries studied in this research were set up as project management units charged with a mandate to help the host governments meet national environmental targets (Table 5.4). Following the initial round of three-to-five-year funding from international donors, these project management units evolved into centres with different governance structures, different management and different targets. Such evolution has an impact on how performance is conceived and achieved by the intermediary. The evolution of intermediaries can be characterised by the choice between spread versus depth of impact as well as the choice between operating as an autonomous consultancy versus as a governmental development agency. The stage of intermediary's evolution is a reflection of the choices made between these options, which in turn influences its performance. A key evolutionary

milestone is the intermediary's full integration to the government system as is the case in South-Africa:

"... that I think is the biggest achievement we have done: ermmm to be able to align to government and have a minister, in fact three ministers that are given KPIs Key Performance Indicators by the president that talks to NCPC." – [South-Africa, Interview I]

Theme #14: Clarity of Intermediary's Goal

"We have to decide what we can do and we have to do it well. To try and be everything to everybody, that's when you start to fail." – [South-Africa, Interview III]

"We need to ensure that everything we say, absolutely everything we say speaks to one common message." – [South-Africa, Interview III]

"Our biggest priority is government and South African industry" – [South-Africa, Interview I]

"I'd rather get the five, have a great impact on the five; write a good story about the five. Because if I focus on the ten that I'm going to have to chase after, it's going to even take much more focus off the three or the five that are actually doing very well. So I'd rather focus on the five and chase impact." – [South-Africa, Interview V]

Clarity of Intermediary's Goal is an important theme cutting across quotes in box #14. Intermediaries are often operating at the intersection of agendas of different funders. This requires them to pursue different goals or targets which creates conflicts of purpose. In high-performing intermediaries, such conflict of purpose might become more pronounced as the portfolio of clients or donors increases. Also as the intermediary evolves, e.g. from being a project management unit to becoming an autonomous entity with full governmental support, it is confronted with a range of strategic dilemma such as what legal form to operate under – e.g. as a limited liability entity or as a trust. Each option has significant implications for the long-term agenda of the intermediary, and it may take considerable amount of time reaching a decision. In the meantime, the intermediary may experience difficulties setting clear directions or goals for the short term. This was the case in NCPC-SA where questions around its long-term options were yet unaddressed leading to challenges with setting clear goals.

The thematic emphasis on clarity of intermediary's goal was observed in South Africa (Table 6.1).

Theme #15: Programme Constraints

“We are operating under very low and minimal budget. And you find out that budget is specific for certain aspect ... we also wish to work with everybody in this country ... but we are limited on finances” – [Kenya, Interview III]

“Yes we want to drive implementation, but ... we don't have the resources to really see the implementation process all the way” – [South-Africa, Interview XI]

“... more regular and frequent follow-up. But that ... doesn't always yield tangible and visible results! ... When you come back what do you say? What do you write down? Was there ... output? ... tangible output other than the conversation?” – [South-Africa, Interview XIV]

“Now that idea also, we have it here. But it's not fully working. Because remember you know that we work with projects. Now depending on the project that is running, you have to follow the terms and conditions that are in the contract.” – [Uganda, Interview III]

“We have very real constraints. We're sitting in a very rigid organization [i.e. the host organization], and we are government funded!” – [South-Africa, Interview III]

Programme Constraints is a theme highlighted by text in box #16. Support programmes are designed with limited opportunity for innovation or for development of the intermediary. Resources for programmes are allocated to projects, with each project having a set of SME-based targets such as number of SMEs recruited or number of workshops conducted. Projects often limit opportunities for follow-ups and relationship building between the intermediary and the SME. Also new projects may not build on previous projects, and intermediaries have limited say in how programmes are designed or in shaping the donor's agenda. Programme constraints also manifest in the operational interactions between the intermediary and its host institution. As it is often required of intermediaries to route procurements and decision-making processes through institutional stakeholders, e.g. the host institution, it becomes challenging for the intermediary to take initiatives independently or to respond to trends in an agile manner without facing bureaucratic

setbacks. All key resources needed by intermediaries including finance, human and decision-making power are pegged by the limited scope of projects. In the case where intermediaries are not exclusively dependent on project funding the opportunities for development and innovation are more visible:

“The South African government literally budgets for NCPC as a line item in the national fiscal budget. And that has helped a lot in the ability to design programmes, especially that ... programmes ... do not have to wait for support from outside.” – [South-Africa, Interview I]

Theme #16: Network Centrality

“There is nobody in this country that has access to private sector than we have, and that has control over private sector than we have.” – [Ghana, Interview IV]

“In this country, you have Kenya Association of Manufacturers; we have Kenya Private Sector Alliance; Kenya National Chamber of Commerce and Industry. So that should be the entry point so that you work with these different associations, create champions – people who can talk positively about cleaner production, and have demonstrated it in their premises” – [Kenya, Interview VIII]

“The only way we are getting these industries to participate in our programmes is we are now working with NEMA very closely. Initially we had a compliance assistance programme where it was voluntary. But we are going in a way that we are going to make this participation in some of the projects mandatory” – [Kenya, Interview III]

“We work with industrial associations, or they could be sector associations like the Fish association, the Hotels association and so on. And they have been very important in our work.” – [Uganda, Interview I]

“NCPC South Africa cannot do it alone. So one of the reasons we're successful is that we have aligned ourselves with both public and private sector partners” – [South-Africa, Interview III]

“This Centre is going to be at the centre-stage of discussion with the parliamentary select committee on environment.” – [Ghana, Interview IV]

Network Centrality is a cross-cutting theme indicated by quotes in box #16. Centrality requires being the associated with the source of stakeholder influence on SMEs. For the most part, the intermediaries in this study considered such source of influence to

be industry associations, trade associations, and the environmental regulator. Securing network centrality involves having formal agreements with influential stakeholders within the SME network, and using such agreements as a means for reaching and influencing positive change in SMEs. Network centrality improves the visibility or accessibility of intermediaries and lends credibility to the organizations. A centrally positioned intermediary may also be seen as a key information source by SMEs hence creating a natural demand for the intermediary's services. As one interviewee puts it, the centrality or level of integration with influential networks is an indication of the intermediary's performance:

“...The fact that it was a UNEP-UNIDO initiative (since 2000) and has today not been integrated as a government department presents very glaring challenges for the centre” – [Kenya, Interview V]

Network Centrality is emphasized across all intermediaries examined in this study.

Theme #17: Degree of network coordination

“Institutional coordination has always been a challenge. And we are trying to work that out through the governance structure of Switch (i.e. the Switch Africa Green programme).” – [Ghana, Interview VI]

"I can tell you I coordinate. It's tough! What I'm talking about is really tough. Even bringing in these people into a Skype ... If you expect six representatives, every single time you meet four. Then next time you meet different people. So you find ... it's like it's back and forth. You cannot get to arrive where you can formulate a unitary direction. So this creates a lot of frustrations." – [Kenya, Interview V]

“It's high time also the international agencies that want to work with us and work with KAM [i.e. Kenyan Association of Manufacturers] to have a boundary – what type of activity can you work with KAM, and what type of activity can you work with KNCPC, what type of activity can you work with the private sector. That's the only way ...” – [Kenya, Interview III]

“ ... But again that also is hampered by ... the extent to which it can achieve much – in the sense that this kind of engagement between KNCPC and NEMA is not written down; there's no blueprint that actually defines how we are going to engage. It's like NEMA can choose to come in or not to. There's nothing really binding them to work with KNCPC. So that you realize that even the participation of NEMA in these projects does not leave a critical effect ...” – [Kenya, Interview V]

Degree of network coordination is reflected in the quotes of box #17 as an area of thematic emphasis. Both intermediaries and their stakeholders recognize the challenges faced with coordinating with other stakeholders in the Programme delivery network. An absence of coordination in the delivery network may translate to the delivery of discordant information to SMEs – leading to confusion and limited or negative impact. An absence of coordination also may lead to duplication of efforts and an inefficient use of resources by intermediaries. The degree of network coordination can be complex and can hardly be defined through a simple linear measure. It often requires the intermediary and other network member to have between them a level of social capital or trust, willingness to take risks, transparency, governance and accountability. It also may involve having a neutral broker with a higher level of influence, such as the funding body or its local representative. The degree of network coordination is emphasised as an important consideration in three out of the four countries studied.

Theme #18: Availability of Competent and Motivated Staff

“I'm not sure that understanding and that feeling is always there. In some instances, I get the sense people [i.e. staff of the NCPC] are saying sure they're getting their salaries: I'm surviving and living, but that's all I need to do, you know. And that's sad ... And you can see it too: some individuals make that effort to effort to skill themselves, to respond to the different things that we do at the NCPC, and others would sit there and just accept their fate and not really do much effort to upskill and get more involved.” – [South-Africa, Interview XIV]

“When you look at this centre, how many are we? We are very few.” – [Kenya, Interview III]

“It's better to build capacity of the centre in a specific field. If you have ten people in energy, ten people in materials handling and what-have-you, ten people who are very good at water. And then these very people are given extra capacity in terms of addressing fields they don't know very well, then you are better off. You have the centre stay” – [Uganda, Interview II]

“Now I think 30% of us must become experts in our area of business” – [South-Africa, Interview I]

“So people [i.e. Programme sponsors and donors] have to be patient, and people have to invest in people in terms of the right technical skills. You come with a project or the other; you've not empowered the industry players and the service providers adequately [and] you want to see results, it

becomes very difficult. People should invest technical skills, and people should be patient.” – [Kenya, Interview III]

“One of the biggest issues is ... the turnover rate [at the Centre] is very high ... Some of the big companies that are able to afford financially to hire the person to do it ... they decide: why bother? Go get a PM at NCPC. And then it means we’re continually training and skilling people ... Last year alone, we lost three senior project managers”

Availability of Competent and Motivated Staff resonates with all quotes in box #18. Having highly skilled staff with sufficient motivation is a key driver of excellence. Intermediaries noted there was the problem of small staff size in relation to the number of industries to be engaged. This meant overworking current staff, risking the chances of staff exits and reducing opportunities for close relationship-building with SMEs. For the intermediary where staff size is relatively bigger, i.e. NCPC-SA there was the problem of high turnover and commitment. Maintaining a large cohort of skilled and motivated staff is a challenge. For an intermediary to perform highly it needs to remain attractive to such skilled and motivated staff despite competition with industry for such workers.

6.2 Cross-Country Comparison

Themes described in Section 6.1 emerged between intermediaries as shown in Table 6.1.

Theme	South Africa	Ghana	Kenya	Uganda
#1: Intermediary’s Neutrality	---	---	✓	---
#2: Intermediary’s Resourcefulness	✓	✓	✓	✓
#3: Intermediary’s Accessibility	✓	---	✓	✓
#4: Relevance of Content	✓	✓	---	✓
#5: Effectiveness of Content	✓	---	✓	✓
#6: Resource Availability in SME	---	---	✓	✓
#7: Level of Organizational Commitment in SME	✓	✓	✓	✓
#8: Public Awareness	✓	---	✓	---
#9: Regulatory Pressure	---	---	✓	✓
#10: Flexibility of Engagement Process	✓	✓	---	---

#11: Efficiency of Engagement Process	✓	---	---	✓
#12: Continuity of Impact	✓	✓	✓	✓
#13: Intermediary’s Evolutionary Stage	✓	---	---	---
#14: Clarity of Intermediary’s Goal	✓	---	✓	---
#15: Programme Constraints	✓	---	✓	✓
#16: Network Centrality	✓	✓	✓	✓
#17: Degree of network coordination	✓	✓	✓	✓
#18: Availability of Competent and Motivated Staff	✓	---	✓	✓

Table 6.1: Themes identified in each country

South Africa represents the country with the most themes, having 15 out of 18 themes (90%). Next are Kenya, Uganda, and Ghana respectively having 14 (84%), 13 (78%) and 7 (42%) out of 18 themes. A similar decreasing order may be observed in the numbers of interviews between the four NCPCs – South-Africa (16), Kenya (7), Uganda (6) and Ghana (2). This suggests there is a direct proportional relationship between number of expert interviews (or available data) and number of themes identified. A possible inference from these is that the results of the thematic analysis may be skewed towards South-Africa since about half of all intermediary interviews (17 out of 32) and 90% of the themes, appeared in NCPC-SA. It must be pointed out, however that this is not an analytical skew since the same analysis procedure is applied across all four intermediaries. Rather, skew here is attributable mainly to data availability.

A “---” in Table 6.1 indicates that the given theme is either absent or only weakly expressed in the intermediary i.e. evidence could not be triangulated between the experts in that country. An example of this is theme #9 (Regulatory Pressure) where a “---” is indicated under South Africa. One expert in NCPC-SA remarks:

“We cannot go out and compel people as NCPC. Only regulations ermmm regulatory mechanisms can do that through government” – [Interview XV]

The above comment highlights the key role of regulation in complementing efforts of the NCPC. This is similar to other remarks made by experts in Kenya and Uganda where theme #9 emerged prominent. However, due to an absence of corroboratory

remarks by other experts within NCPC-SA this comment is not developed into a theme. The presence or absence of a theme in a given intermediary may be considered as partially indicative of similarities and differences in the thematic emphasis of the intermediary in comparison to others. Again the example of a “---” in theme #9 (Regulatory Pressure) for the South African NCPC, may be considered to be an area of difference with other intermediaries, while theme #12 (Continuity of Impact) may be considered an area of similarity. Possible explanations for similarities and differences between intermediaries with respect to their national contexts are explored in section 7.3.

6.3 Ensuring Reliability

Member-checking, triangulation and saturation are considered important in achieving reliability in this study (section 3.8):

1. Member-checking was implemented during interview sessions, to align the researcher’s perception of emerging ideas with that of the experts. In a number of member-checking instances experts provided further clarification. For example when unclear about whether the interviewee referred to a situation of reducing number of assessment exercise conducted in SMEs, the following member-checking conversation ensued:

Researcher: If you're trying to reach as many companies as possible on RECP, why have you toned down number of assessments?

Interviewee: Erhmm, I think we need to be careful with that erhmm statement. I don't think we've really toned down the number of assessments. Erhmm I think overall, if you look at the different mechanisms we have to deliver assessments, I think the number is still sitting at around 200 assessments. [NCPC-SA, Interview XIV]

Member-checking was also implemented at the thematic level through a final report on findings presented to the NCPC leaders. All feedback received were affirmatory. One expert from NCPC-SA commented in an email response:

“Many thanks for the report, its short, yet detailed and it gives a clear picture of NCPC-SA. As a staff member I can resonate with the content of this report.” [Interviewee II]

2. Triangulation was applied in theme development by matching related evidences between multiple sources ($n \geq 3$) within a given intermediary. In the case of Ghana NCPC where only two interviews were conducted, third pieces of supporting evidence were found with a UNDP expert who has worked closely with the GNCPC and arguably possesses a comparable insider knowledge. Details of evidence on triangulation can be observed in Appendix A Tables I-IV.
3. Saturation. The chronological order of data collection was South-Africa – Ghana – Kenya – Uganda. From Table 6.1 it can be observed that by the end of analysis for the final country, i.e. Uganda, no new themes emerged from the analysis process. This observation is an indication of saturation, an important criterion for this analysis. It may be argued that saturation in this case study may have risen due to the limited amount of data available from other intermediaries compared to NCPC-SA. However, such argument is countered by the fact that successive intermediary engagement proactively explored for ideas which had not previously emerged in other intermediaries (section 3.6) based on grounded-theory principle. In addition expert interviews in NCPC-SA only constitutes approximately 50% of total expert interviews, meaning there was an equal theoretical opportunity to find new themes outside of NCPC-SA as there were to find within it. Hence, the non-emergence of new themes after engagement with the final intermediary – UCPC – may be considered evidence of analytical saturation.

Universality of findings on Table 6.1 can be evaluated on the basis of statistical or analytical representativeness. Given that the current research adopts the case study approach, analytical representativeness is considered more relevant (Yin, 2013). There are no known evidence suggesting that the results on Table 6.1 may not be applicable to intermediaries operating in a similar context, for example National Cleaner Production Centre of Tanzania. Thus the results of Table 6.1 may be considered universal within the context of similar intermediaries promoting sustainability practices among SME manufacturers in similar countries.

There is no available evidence to suggest that results on Table 6.1 are not repeatable. It is expected that similar results would re-emerge if the study were performed by another researcher, at another time or in a different intermediary similar to the chosen ones, provided the methodology is applied precisely as described in this thesis. Interpretational biases may create slight variability, however effort has been made in this study to limit such biases through relevant reliability techniques – triangulation, member-checking and saturation. Furthermore, effort has been made to ensure the researcher’s thought process is made explicit throughout data analysis. Strict adherence to the methods of this study therefore would tend to yield similar results.

6.4 Alternative Explanations

Four key counter-arguments or alternative explanations may be postulated in this study:

1. That there are ideas or comments within the dataset which directly contradict the identified themes, hence posing a validity threat
2. That a given theme is not a “theme” at all, as it is composed of unrelated ideas
3. That not all relevant themes have been identified, i.e. there may be more than the identified 18 themes
4. That there are possible overlaps or duplications between identified themes

The **first counter-argument** suggests there might be an idea or comment in the dataset which directly contradicts a given theme, e.g. there might be a comment which suggests that the *intermediary resourcefulness* (theme #2) of the intermediary is **not** a theme relevant to the intermediary’s performance. One example is as follows:

“I think after about 2008, dti felt they owned the centre and had the centre in their pockets and [that] we needed to deliver what things that we've talked with them, and ... they're like we would fund you but we don't want you generating external income.” – [NCPC-SA, Interview XIV]

The above comment may appear as a validity threat to theme #2 (intermediary resourcefulness) which clearly requires that the intermediary possesses a decent amount of resources including financial, and knowledge-based resources. However, on closer re-examination of this comment it can be seen that the need for intermediary

resourcefulness (i.e. theme #2) is not directly disputed, only the means by which the income (or financial resource) is acquired is the dti's concern. Having external source of revenue although a reasonable idea for intermediary performance does not emerge in this study as a key theme. A number of other apparent validity threats were re-examined throughout the data corpus, and none proved directly contradictory to the identified themes.

The **second counter-argument** suggests there is the possibility for incoherence between ideas making up a given theme, hence such theme lacks internal validity. However, given that, (1) themes were developed bottom-up in a multi-stage process involving transcript-skimming, coding, comparisons, and clustering [see Appendix A Tables I - IV]; (2) thematic analysis was performed over multiple iterations until strong consistency emerged; and (3) all themes emerged from minimum of three different experts per intermediary (i.e. source triangulation) – chances for internal incoherence within a given theme are minimal.

The **third counter-argument** highlights the possibility of an omission problem, i.e. the possibility that there are other identifiable themes which may have been excluded from the results. As an example, when referring to a local manufacturer association which recently began providing similar support programmes to their members, one NCPC expert commented:

“It's unfortunate it's happening, but that does not close work for NCPC. We have been trained on the ground. We have delivered results. We don't use observations; we make measurements. That's where we can only beat them. Yeah. But it's unfortunate that they're also coming in. Soon you'll hear that they are talking about resource efficiency and cleaner production” – [KNCPC, Interview III]

The above comment is revealing. It shows how experts in a given intermediary may sometimes perceive their organization to be in direct competition with other intermediaries or local actors, despite knowing they are all working towards making positive impact on SMEs. However, this comment neither directly fits under any existing theme, nor does it have adequate corroboratory evidence to constitute a new theme. Another expert, while reacting to the same issue remarked:

“I believe in competition. Because when there's competition, there's going to be less complacency. Because when you leave them [i.e. NCPC] to do it alone, they'd be very complacent. Now they must be put on their toes” – [Kenya, Interview VIII]

The previous two comments shows the absence of agreement between experts on the role of competition in intermediary performance. In the absence of corroborating evidences, the competition idea is not categorized as thematic aspect of intermediary performance but simply considered as additional information. However, this is an active choice and not an oversight or omission problem. A number of similar cases of additional information were observed during the analysis. Given that (1) the entire corpus of available data was analysed; (2) the thematic analysis process was repeated until strong consistency emerged; (3) member-checking was implemented during interviews [Section 3.8] and (4) a clear saturation point was established [section 6.3], the likelihood of a relevant theme being omitted is significantly low.

The **fourth counter-argument** suggests that there might be fewer distinct themes than those identified. This argument emphasizes the possibility that the same idea may have been identified at different levels of abstraction, or from multiple perspectives leading to possible overlaps and/or duplication of themes. One possible example of this is between themes #15 (programme constraints) and #18 (availability of competent and motivated staff), where a comment such as that below may apply:

“Look, Cleaner Production Centres are leanly staffed. There's just as much as they can do.” – [Kenya, Interview VIII]

Interpreted from the perspective of programmes, the above comment about lean staffing applies as much as it does when considered from the perspective of having competent and motivated staff. Although the evidence (or quote) is the same, however the themes are different. One theme (theme #15) focuses on highlighting the terms and conditions of project or programme funding as a key constraint (along with other constraints such as the focus sector, project deadline, and deliverables). The other highlights a key aspect of the intermediary which may or may not be connected to a programme, i.e. availability of competent and motivated staff. Both themes may share the above quote, however the overall message derived from the collection of quotes under each theme are different. Furthermore, given that (1) member-checking was

implemented at multiple stages of the analysis and (2) the thematic analysis process was repeated until strong consistency emerged, the possibility for duplication and/or overlaps is significantly low. In addition, the keywords describing each theme further highlight the distinction since no two thematic keywords are synonyms or sub-category/type of another (based on Oxford English Dictionary, 2018).

6.5 Key Learning

This chapter has analysed the interview responses from experts in four African NCPCs and related organizations.

- Eighteen themes are identified across all the intermediaries which relate to drivers of intermediary performance
- Intermediaries share a blend of similarities and differences in their thematic emphases (Table 6.1).
- Counter-arguments or alternative explanations are explored in this chapter. It is shown that identified themes are internally coherent, distinct, and not contrasted by available data.
- Results of this analysis might include a skew towards NCPC-SA since this intermediary offered the highest number of experts of all intermediaries engaged in this study. However, this may be considered a skew in available data and not a problem with the analysis process.
- Having taken key criteria for case study research into consideration – triangulation, member-checking and saturation – this chapter has provided a basis on which the themes may be considered internally valid.

The aim of this study is to deepen understanding of the relationship between intermediary performance and the impact of sustainability support programmes on SMEs in developing countries. To achieve this aim, five key research questions relating to intermediary's performance have been posed in the introductory chapter:

1. What are the key drivers of an intermediary's performance in the delivery of sustainability support programmes to SMEs in developing countries?
2. How do drivers of intermediary performance compare with factors known to influence the uptake of sustainability by SMEs?
3. How do contextual differences between countries influence performance of an intermediary?
4. What is the relationship between effective public service delivery and intermediary's performance?
5. How are the international environmental programmes aimed at improving sustainability in developing countries' SMEs influenced by the intermediary's performance?

Following the previous chapter's analysis of evidence from four National Cleaner Production Centres in Africa, this chapter discusses key findings with a view to addressing the research questions. The chapter is structured into five sections corresponding to the five research questions.

7.1.1 Key Drivers of Intermediary Performance

What are the key drivers of an intermediary's performance in the delivery of sustainability support programmes to SMEs? Chapter 2 (literature review) shows a number of studies have been conducted previously to improve understanding of the intermediary, e.g. Howells (2006), Kivimaa (2014) and Klewitz et al (2012). The knowledge gap left by previous studies, however is on the performance of the

intermediary and the key driving factors. Previous studies have focused mainly on the roles played by intermediaries in promoting the uptake of sustainability by SMEs. This study, being one of the first to further explore the intermediary with regard to its performance, has identified a number of key performance drivers. These are based on the themes identified from the analysis of the National Cleaner Production Centres programme in Chapter 6.

Theme	South Africa	Ghana	Kenya	Uganda
#1. Intermediary's Neutrality	---	---	✓	---
#2. Intermediary's Resourcefulness	✓	✓	✓	✓
#3. Intermediary's Accessibility	✓	---	✓	✓
#4. Relevance of Content	✓	✓	---	✓
#5. Effectiveness of Content	✓	---	✓	✓
#6. Resource Availability in SME	---	---	✓	✓
#7. Level of Organizational Commitment in SME	✓	✓	✓	✓
#8. Public Awareness	✓	---	✓	---
#9. Regulatory Pressure	---	---	✓	✓
#10. Flexibility of Engagement Process	✓	✓	---	---
#11. Efficiency of Engagement Process	✓	---	---	✓
#12. Continuity of Impact	✓	✓	✓	✓
#13. Intermediary's Evolutionary Stage	✓	---	---	---
#14. Clarity of Intermediary's Goal	✓	---	✓	---
#15. Programme Constraints	✓	---	✓	✓
#17. Network Centrality	✓	✓	✓	✓
#17. Degree of network coordination	✓	✓	✓	✓
#18. Availability of competent and motivated staff	✓	---	✓	✓

Table 7.1: Thematic emphases across intermediaries (copy of table 6.1)

Each theme shown in table 7.1 represents an area considered by intermediaries as critical to their performance. Therefore to address the current research question, the themes of table 7.1 are postulated. Themes appearing across multiple countries (based on the principle of triangulation) are considered the *key* drivers of intermediary performance in this study. There are ten key drivers:

- Intermediary's Resourcefulness
- Intermediary's Accessibility
- Relevance of Content

- Effectiveness of Content
- Level of Organizational Commitment in SME
- Continuity of Impact
- Programme Constraints
- Network Centrality
- Degree of network coordination
- Availability of competent and motivated staff

Descriptions of these key drivers have been presented in section 6.1. For clarity, these are summarized below:

Intermediary's resourcefulness refers to the degree to which an intermediary is perceived by an SME as capable of meeting its present sustainability-related need. Resourcefulness involves an intermediary's ability to provide in addition to the core support activity, contacts, funding information, proposal-writing services, supplier databases, personnel, interns, and a range of other relevant resources.

Intermediary's accessibility pertains to the level to which SMEs consider the intermediary's services available and affordable. This requires the intermediary to have a visible presence across the locations and networks where its target SMEs operate.

Relevance of content refers to the degree to which the information or tools being provided by the intermediary matches the context and/or need of the SME. The level of detail, the language, the clarity (e.g. inclusion of step-by-step instructions) and the resource requirements are key considerations for making content relevant to the SME.

Effectiveness of content shares some similarity with relevance of content. However, it pertains more to implementation. The advice, information, or solution being provided by intermediaries must yield desired results when applied. Although this point may appear rather nuanced, it is highly emphasised across intermediaries, particularly due to the fact that sustainability-oriented tools or solutions are often designed with large companies in mind (Jenkins, 2004; Klewitz et al, 2012). They may therefore be ineffective within the SME context more so in the developing country context.

Level of organizational commitment in SME is a key driver which lies outside the scope of the intermediary's direct control. However, intermediaries may apply different stakeholder influence strategies to enhance commitment. Organizational commitment of SME is evidenced by the amount of resources – e.g. time, funds, and skilled personnel – the SME dedicates to the achievement of its sustainability goal. Intermediaries often stress the criticality of securing a high level of organizational commitment in SMEs before proceeding further with support service provision.

Continuity of Impact pertains to the level to which human capacity is built within the SMEs during support programme delivery. Intermediaries in this study note that it is important to build capacity in addition to providing advice or tools to SMEs. Capacity building may include engaging SMEs in a hands-on learning exercises, setting up inter-enterprise collaboration programmes or clubs, provision of industrial attaches or interns among a number of other methods.

Programme Constraints are parameters of the support programme, often defined by donors or programme sponsors, which affect the intermediary's ability to develop, experiment or innovate. For instance, most intermediaries note the need to build relationships with SMEs through post-service follow-ups. However, due to limited project duration, scope, and funds, such relationships are stifled. Programme constraints also reflect the level to which succeeding projects extend or reinforce previous projects.

Network Centrality is the degree to which the intermediary can leverage the influence or resources the of key SME stakeholders. Governments, financial institutions, customers and industry associations are influential members of the SME network. It is important for an intermediary to be closely connected to these stakeholders and be capable of leveraging their influences or resources in support programme delivery. Having MoUs, MoAs and other terms of agreement with key stakeholders are an indication of an intermediary's network centrality.

Degree of Network Coordination is a driver of intermediary performance which stems from the need for the intermediary to collaborate or partner with

other organizations in the delivery of its support service. Absence of proper coordination could cause bureaucratic roadblocks, duplication of efforts, discordant information reaching SMEs and ultimately a poor intermediary performance.

Availability of Competent and Motivated Staff is a key driver internal to the intermediary. It may be considered an “enabler” in that other drivers rely on it. The intermediaries in this study highlighted the high impact of staff size, skill range, turnover rate and the level of commitment to the overall performance of the intermediary.

Other themes in table 7.1 are clearly important. However, the evidence to suggest their status as *key* drivers of intermediary’s performance is limited. Hence, they may simply be considered under the broad heading of “drivers”.

Using inter-intermediary triangulation as the criteria for labelling a theme as a *key* driver, has its limitations. A theme may indeed be critical driver, but due to a number of factors may not appear across more than one or two intermediaries. As an example, theme #8 – Public Awareness – is not emphasised in Ghana and Uganda. This may not mean that public awareness is not a key driver for intermediaries in Ghana and Uganda. Rather, it may be that factors such as limitations in available data, i.e. number of interviews (section 6.2) and/or the absence of multiple corroboratory sources within the intermediary, have attenuated the perceived emphasis on this theme in both countries. However, to maintain consistency with the research methodology, only themes meeting triangulation criteria, i.e. appearing in three or four countries are considered *key* drivers in this study. There is limited evidence against this conclusion.

7.1.2 The PEESIS Framework

Themes identified in this study could be grouped into six categories. The grouping is a proposal derived from the feedback provided by researchers and practitioners affiliated to the Centre for Industrial Sustainability at the University of Cambridge. The proposal (Table 7.2) categorizes all key and non-key drivers under six headings based on perceived functional relationships. *External Profile* pertains to the overall perception the target SMEs have of the intermediary and covers three themes – intermediary resourcefulness, accessibility and neutrality. The second category is *Engagement Strategy* – referring to the actual engagement between SMEs and the

intermediary. It covers every aspect of the tools or content being provided as well as the process of providing such. *SME Context* represents a block of factors not directly under the control of the intermediary, however, these factors significantly influence intermediary performance. It is possible to further split the SME context category into internal and external depending on their theoretical relationship to SMEs.

Categories	Constituents
External Profile	Intermediary's Resourcefulness [k]
	Intermediary's Accessibility [k]
	Intermediary's Neutrality
Engagement Strategy	Relevance of Content [k]
	Effectiveness of Content [k]
	Flexibility of Engagement Process
	Efficiency of Engagement Process
SME Context	Level of Organizational Commitment in SME [k]
	Resource Availability in SME
	Public Awareness
	Regulatory Pressure
Impact Strategy	Continuity of Impact [k]
	Clarity of Intermediary's Goal
	Intermediary's Evolutionary Stage
Service Networks	Network Centrality [k]
	Degree of network coordination [k]
Programme Resourcing	Availability of competent and motivated staff [k]
	Programme Constraints [k]

Table 7.2: Categorizing intermediary performance drivers
("[k]" represents key drivers)

Impact Strategy is a critical category composed of overarching frameworks guiding the intermediary's short-to-long term engagement with SMEs and other stakeholders. How the intermediary ensures the continuity of its impact is particularly important in building its strategy. *Service Networks* is composed of a pair of key drivers – intermediary's centrality within the service delivery network and the degree to which services in the network are coordinated. These play a key role on intermediary performance. The sixth category – *Programme Constraints* – pertains to how much resources are available to intermediaries in the delivery of their support programmes and their degree of autonomy (or restrictions) in apportioning resources.

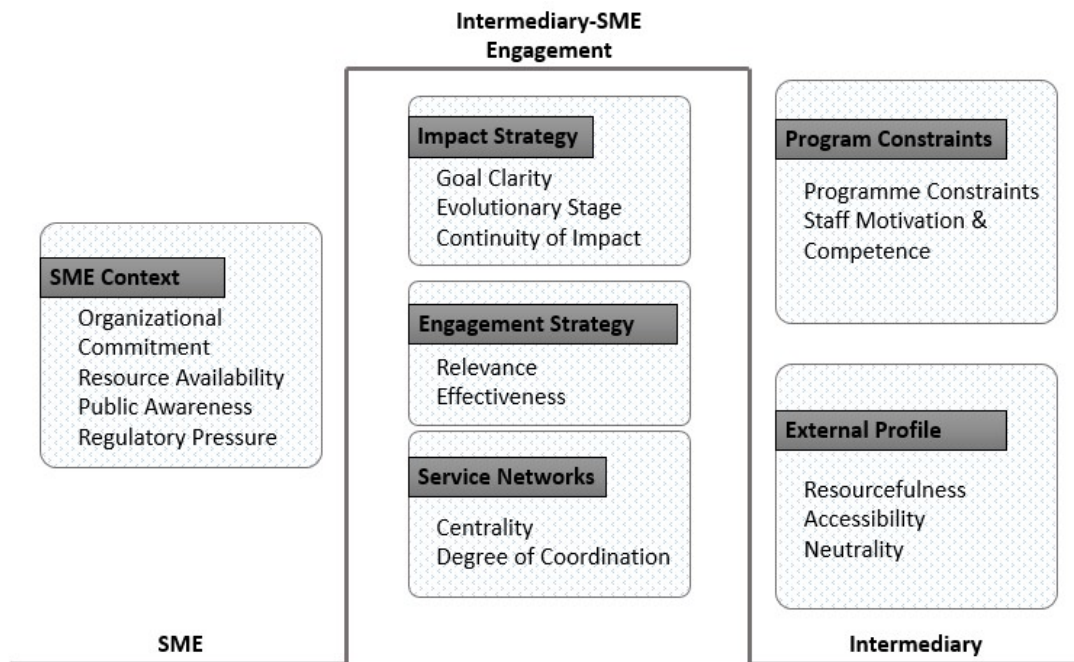


Figure 7.1: Drivers of Intermediary Performance – The PEESIS Framework

The first letters of all six categories form the mnemonic or acronym – PEESIS – after which a new framework (Figure 7.1) is named. The PEESIS framework is proposed for use in illustrating or analysing an intermediary’s performance.

PEEISIS is a conceptual framework. As pointed out by Imenda (2014) a “conceptual framework” is an outcome which generally emerges from inductive research. PEESIS has been created through an inductive (grounded theory) research process. The framework may be subjected to further refinement as subsequent studies elicit insights on drivers of intermediary performance. A framework may be described as an abstract concept which [sic] supports understanding and communication of structure and relationship of a given system for a defined purpose, while a tool facilitates the practical application of a technique (Shehabuddeen et al 2000). The PEESIS framework may represent the starting point in the development of a management tool for assessing intermediary performance determinants. The process of developing a management tool from conceptual framework requires rigorous rounds of testing and validating with real-life cases. The process may be closely linked to organizational and personal learning cycles (Phaal et al 2001).

7.2 SMEs and Sustainability – The Deciding Factors

How do drivers of intermediary performance compare with factors known to influence the uptake of sustainability by SMEs? This is a question yet to be fully explored in the literature as shown in Chapter 2. Existing literature have examined factors influencing the uptake of sustainable practices by SMEs. For example Hillary (2004), while examining voluntary environmental initiatives among SMEs in the European Union sampled 33 previous studies in addition to an original research on the SME sectors use of Environmental Management Systems (EMS). Arguably one of the most-cited studies of its kind, Hillary (2004) provides insights on the barriers, opportunities and drivers of sustainability adoption by SMEs. The study segments drivers and barriers of EMS adoption into internal and external. Internal benefits are organizational benefits, financial benefits, and people benefits. External benefits are commercial, environmental and communication benefits. Disbenefits are also identified under three headings: lack of rewards, resources, and EMS surprises.

Internal barriers to sustainability adoption are resources, understanding & perception, implementation, and attitudes & company culture. External barriers are certifiers/verifiers, economics, institutional weaknesses, support & guidance. The study also highlights key stakeholders responsible for driving EMS adoption in SMEs. These are customers, local government, local community, regulators and employees. In addition it mentions other important stakeholders to include insurers, general public, suppliers, larger companies, and banks. Several other studies have been conducted similar to Hillary (2004) with some focusing on different regions and/or industries. Examples include McKeiver & Gadenne (2005), Meath et al (2016), Redmond et al (2008), Roberts et al (2006) and Walker et al (2008). These studies identify similar barriers, drivers and benefits of sustainability uptake in SMEs. Table 2.6b summarizes the factors on SME uptake of sustainability practices.

Comparing findings of the current study of intermediary performance with existing literature (table 7.3) shows there are clear similarities between the two.

	Factors (from the literature [table 2.6b])	Corresponding Factors (from current study [section 7.1])
Internal	Resources	Resource availability in SME
	Understanding and perception	Level of organizational commitment in SME
	Implementation	Level of organizational commitment in SME
	Attitudes and Company culture	Level of organizational commitment in SME
External	Certifiers/verifiers	Intermediary's accessibility; Degree of network coordination; Intermediary's resourcefulness
	Economics	Public awareness (market demand)
	Institutional weaknesses	Regulatory pressure, Intermediary's accessibility, Intermediary's resourcefulness, Network centrality,
	Support and guidance	Intermediary's accessibility, Intermediary's resourcefulness, Network centrality, Degree of network coordination

Table 7.3: Juxtaposing existing literature with new findings on factors influencing SME uptake of sustainability

Key differences exist between the findings of extant literature and the findings of this study with respect to factors affecting the uptake of sustainability by SMEs. A number of intermediary-related factors identified in this study do not find a match in existing literature, thus are absent from table 7.3. These are:

- Programme constraints
- Availability of motivated & competent staff
- Efficiency of engagement process
- Continuity of Impact
- Flexibility of engagement process
- Intermediary's evolutionary stage
- Intermediary's neutrality and
- Clarity of intermediary's goal

The difference between extant literature and the current study's findings may be explained from the perspective of differences in data sources. Whereas, the majority of existing literature on the subject are based on data from SMEs (e.g. Bradford & Fraser, 2008; Drake et al, 2004; Hillary, 2004; Redmond et al. 2008; Revell & Blackburn, 2007), this study uses the intermediary as its data source. While SMEs may identify a number of intermediary-based factors as responsible for the outcome of support programmes, they may not offer elaborate clarity on these factors as the intermediaries concerned. Existing understanding of factors affecting the uptake of sustainability by SMEs has therefore remained limited since it heavily focuses on the SME account. However, by focusing on the intermediary this study reveals a number of other factors which have not been previously emphasised.

Correspondence between 'economics' and 'public awareness' raises questions about similarity of the two terms. 'Economics' as used in the original text (Hillary, 2004) refers to SMEs' [sic] uncertainty about the value of an EMS in the market place. (EMS stands for Environmental Management Systems, and is an example of the solutions provided by the intermediaries under investigation). Put differently, 'economics' refers to SMEs' uncertainty about the market value of a given sustainability solution. While the original text does not provide additional elaboration on the term, the researcher has further interpreted 'economics' to correspond to public awareness. The interpretation is considered plausible since higher public awareness of sustainability may be linked to better market value for sustainably produced goods and services. To minimize possibilities for misinterpretations, an explanation of Public awareness is put in parenthesis next to the term in Table 7.3. It is recognized that "market value" or "economics" are complex terms which may not be simply reduced to "public awareness". However, the thought process leading to the current interpretation has been made explicit. The interpretation may be subjected to further refinement.

7.3 Intermediary Performance and the National Context

"If you actually look at the contexts in which we [NCPC-SA] are operating... it looks unfair to say that we are more successful than others because they [other NCPCs] are operating in a completely different context."

– NCPC-SA Communications & Marketing Director

How do contextual differences between countries influence performance of an intermediary? This study has examined intermediaries in four countries with different national contexts. Contextual differences can be illustrated by comparing national and intermediary-related parameters as shown in Table 7.4.

Table 7.4 uses data from Chapters 5 and 6 to compare the uniqueness and similarities between the four-focus intermediaries' contexts. South Africa's key uniqueness lies in its high youth unemployment (57% compared to the 22% average), its large economy (with GDP per capita more than three times the next highest and more than the combination of other three countries), its large industrial productivity (with MVA per capita close to 10 times that of next highest) as well as its focal intermediary size & spread (being the only country with multiple office locations, a staff strength six times the average of other three intermediaries, and an active plan for further expansion). South Africa shares limited independent similarity with Uganda, although there are cases of parity between South Africa, Uganda and one or two of the other countries. With Kenya, South Africa shares a higher comparability than with other two countries in areas of manufactured exports share of total exports and manufacturing value added share in total GDP and population. With Ghana, South Africa has a higher similarity than with other countries in three areas: HDI (Human Development Index – a measure of standard of living made up of indicators of life expectancy, education and income levels), percentage of rural population and an initial programme donor.

There are marked differences between Ghana and other three countries in their years of establishment of focal intermediary: while other countries' intermediaries were established in the early 2000's as part of the second generation of cleaner production centres, GCPC was established more than a decade later. GCPC is also the only intermediary to be hosted by a regulatory agency – the Environmental Protection Agency of Ghana. Ghana shares higher similarity with Kenya in terms of economy size (GDP per capita) and its HDI. With Uganda, Ghana shares higher similarity in terms of low youth unemployment rate and Competitive Industrial Performance Index.

	Uganda	Ghana	South Africa	Kenya
Region	Eastern Africa	Western Africa	Southern Africa	Eastern Africa
People	Population of 41 million 84% rural Youth unemployment of 2.9%	Population of 28 million 45% rural Youth unemployment of 4.9%	Population of 56 million 35% rural Youth unemployment of 57%	Population of 48million 74% rural Youth unemployment of 26%
Human Development Index	0.493	0.579	0.666	0.555
Economy	GDP per capita of US\$615	GDP per capita of US\$1500	GDP per capita of US\$5,299	GDP per capita of US\$1,587
Key Industry Highlight	SMEs make up 90% of industries Kampala has the highest concentration of manufacturing industries Country's eastern region leads in grain milling; western in tea; central in coffee; and northern in source of labour	Industrial sector is made of 94% SMEs Host to one of Africa's largest light manufacturing clusters – the Suame-Magazine in Kumasi, specialists in automobile parts Has developed a number of EPZs	Considered the most industrialized in Africa Dominant sub-sectors are chemicals, metals and machinery, and food processing Ranked the world's 13th greatest CO2 emitter in 2009	Manufacturing is the third biggest GDP contributor The dominant sub-sector has been FBT (Food, Beverages, and Tobacco) Industries are concentrated in Nairobi, Mombasa, and Kisumu
Manufactured Export per capita	12.85	34.62	837.73	57.79
Manufacturing Value Added per capita	52.21	82.83	1018.06	115.56
Manufactured Exports share of total exports	35.1%	22.1%	65.0%	51.8%

Manufacturing Value Added share in total GDP	10.2%	7.2%	14.1%	12.1%
UNIDO Competitive Industrial Performance Index	0.005	0.006	0.082	0.012
Focal Intermediary	UCPC	GCPC	NCPC-SA	KNPCPC
Year of Intermediary Establishment	2001	2014	2002	2000
Initial Donor	Austria, Norway	Switzerland	Switzerland, Austria	UNDP
Current Size	Less than eight including admin staff	Seven including admin staff	Forty two	Seven including admin staff
Offices	1 office in Kampala	1 office in Tema (Greater Accra)	3 offices – Pretoria, Durban, Cape Town	1 office in Nairobi
Host	Uganda Industrial Research Institute [UIRI]	Environmental Protection Agency [EPA]	Council for Scientific & Industrial Research [CSIR]	Kenya Industrial Research & Development Institute [KIRDI]
Expansion Plans	No active expansion plans	No active expansion plans	Ongoing plans to open next office in Port Elizabeth	No active expansion plans

Table 7.4: Comparing contextual parameters across countries

Kenya and Uganda are two countries found in eastern Africa; both share a high rural population. Although not explicitly stated throughout the Table 7.4 food industries are common to all countries. While light metal manufacturing are more prominent in Ghana, heavy industries are more dominant in South Africa. A commonly cited difference between countries is the strength of institutions. However, this parameter consists in a broad range of indicators which may be challenging to define.

To address the question on how contextual differences between countries may impact intermediary performance, tables 7.4 and 7.1 are invoked. The assumption here is that the differences in thematic emphasis between countries as illustrated in 7.1 can be considered a proxy for the difference in intermediary performance. Although no actual performance data (e.g. amount of CO₂ saved) are collected from intermediaries, it is assumed that any potential differences observed in such data would be related to the differences in performance themes emphasised in these countries. This assumption is of course subject to further validation, albeit it suffices for now since it provides a degree of freedom for the current exploratory study. From table 7.1 three sets of differences between thematic emphases can be noted:

1. Performance drivers emphasised in only one country/intermediary
 - a. Intermediary's Evolutionary Stage – only emphasised in South Africa
 - b. Intermediary's Neutrality – only emphasised in Kenya
2. Performance drivers emphasised in only two countries/intermediaries
 - a. Resource Availability in SME – only emphasised in Kenya and Uganda
 - b. Public Awareness – only emphasised in South Africa and Kenya
Regulatory Pressure – only emphasised in Kenya and Uganda
 - c. Flexibility of Engagement Process – only emphasised in South Africa and Ghana
 - d. Efficiency of Engagement Process – only emphasised in South Africa and Uganda
 - e. Clarity of Intermediary's Goal – only emphasised in South Africa and Kenya
3. Three or four countries emphasise a given driver
 - a. All other drivers listed in table 7.1

The third category may be the least revealing since drivers in this category are common to most countries. Therefore the first category (and to a less-extent the second category) are examined further. An explanation for differences in performance emphases between intermediaries are sought from the contextual data of Table 7.4.

7.3.1 Category #1: Performance drivers emphasised in only one intermediary

Two performance drivers are emphasised in only one country. First is the *intermediary's evolutionary stage* – emphasised only in South Africa. Intermediary's evolutionary stage is an indicator of the intermediary's development since its establishment as an organization, as a public service agency and/or as a network actor. Owing to the variety of projects handled by intermediaries, changes in available support as well as changes in market demands, intermediaries are constantly evolving. Their evolution may be characterised by strategic choices made since their inception: for example, the choice to become autonomous, i.e. operating as a private/independent consultancy or to become fully absorbed into the government system. While the former may involve challenges of financial sustainability, legal identity, and legitimacy, the alternative may perpetuate bureaucratic roadblocks, political interference and instability. Other strategic choices to be made pertains to the services offered and the proportion of resource allocation. Choosing between output-based services such as delivering energy assessments to a wide range of SMEs or impact-based services such as providing end-to-end specialist advisory to a few major green technology investors is another example. While the former may help achieve national reach and create widespread awareness, the latter may create greater impact and improve chances of financial sustainability for the intermediary. However, trying to combine both options may be detrimental to the intermediary. With each choice is a turn in the evolutionary process.

South Africa's emergence as the only country where intermediary's evolutionary stage is emphasised can be explained through its unique national context, albeit not with parameters explicitly defined in Table 7.4. The South African intermediary (NCPC-SA) has arguably been involved in a wider series of strategy refinement indicating a richer experience of evolution. Similar to other cleaner production centres, NCPC-SA was established as a project management unit of UNIDO and UNEP hosted by the CSIR, and charged with the mandate of supporting the South-African government in its

effort to meet sustainable industrial development targets through the provision of awareness-raising and assessment services to industries in areas of cleaner production. However, unlike other countries South-Africa experienced a major energy crises leading government, energy utilities and other key stakeholders to urgently seek new ways tackle the challenge. Through the energy efficiency services offered by NCPC-SA the stakeholders found a readily available means of addressing the crises from the demand side:

“One of the things that happened to the NCPC is in 2010 ... When the Industrial Energy Efficiency project kicked in we had load shedding, and it was good for us. People were receptive to the message of energy efficiency. And if you look at our work over the last seven to eight years, eighty-five percent of it has been on energy.”

– NCPC-SA Communications & Marketing Director

In particular, large industrial energy consumers became the target of NCPC-SA during the national energy crises. With support from the department of energy, department of trade and industry, and the department of environment the intermediary soon became a central agency of government reporting directly to ministers across three different departments:

“So we become a critical role-player in that. So you can go to water affairs, they have the same thing. You go to economic development, small businesses ... So we're becoming a central significant partner to these ministries in terms of quality assurance, in terms of a trusted partner in a scientific and technical input into policy issues and requirements.”

“... For example, we run the national industrial energy efficiency project. They're now asking us to look at renewables and alternative energy issues. We're advising on standards and quality assurance or monitoring and verification on all energy-related issues.”

– NCPC-SA Director

NCPC-SA also built a robust reputation and visibility by working with some of the country's biggest industries. The intermediary also received more funding from the government to expand its offices to key industrial zones while new programmes such

as industrial internship programmes for South African graduates were initiated. The centre has experienced a 1,300% increase in its annual budget between 2008 and 2016 (source: Business Plans; Centre Director) and now boasts of being a line item on the national budget.

“The South African government literally budgets for NCPC as a line item in the national budget fiscal. And that has helped a lot in the ability to design programmes, especially that for programmes that do not have to wait for support from outside.”

– NCPC-SA Director

“Another ingredient of success ... that is very unusual in NCPC is that we go out and aggressively market. So If I can give you an indication, there was no marketing budget in 2012. In 2013 there was probably about one-and-a-half million [rand] on marketing and communication. Now it's I think six-and-a-half million. So resources have been allocated to this. We now make use of specialized consultants”

– NCPC-SA Communications & Marketing Director

With its unique blend of experiences in terms of the national energy crises and robust government support, the South-African intermediary evolved past the stage where some of its contemporaries, e.g. UCPC and KNCPC currently operate. It must be highlighted that although the experiences of South Africa are unique, the emergence of Intermediary’s evolutionary stage as a differentiating driver may not directly link to any of the parameters in Table 7.4. Rather the greater government commitment and occurrences of national crises may be the key distinguishing parameters. The former parameter, i.e. greater government commitment, however may be associated with the country’s higher industrial performance and its need to maintain competitiveness:

“... and there were three reasons that I picked up. Number one and very strong is the economic infrastructure. South Africa hosts the biggest manufacturing hub in the Sub-Saharan or Southern hemisphere, which is ... the manufacturing hub is twice the ... economy of the continent. In that way South African government is directly forced to look after this manufacturing system”

– NCPC-SA Director

The above quote might include factual errors in terms of comparing the size of South-Africa's manufacturing to the African continent's economy. However, the quote clearly indicates that the strong industrial base is a key driver of the government's commitment to providing adequate support. Thus, the strength of manufacturing and the occurrences of national resource crises are two possible contextual factors related to intermediary performance. Three additional reasons for government commitment: minimal competing priorities, presence of a strong legislative infrastructure, and the strong pool of local expertise.

A second driver of intermediary performance emphasised in one country and not in others is the intermediary's neutrality. This emerged prominent in Kenya only. It may be argued that this driver is not necessarily unique to Kenya since intermediaries in other countries equally allude to it. For example, one expert in Uganda Cleaner Production Centre (UCPC) responded:

"... I'm saying 'carefully involve them' because we don't want to be seen as if we are in the same bed with the regulator. That has also its serious implications. Because that means you will not access the details of the company. And once you cannot penetrate their data, you will not come up with good measures."

– UCPC Director

However, intermediary neutrality may be considered key in a context where the intermediary's main approach to influencing SMEs is through partnership with regulators. In Kenya this approach has played a significant role in SME engagement with the KNCPC working closely with Kenya's National Environmental Management Authority to deliver compliance assistance programmes. It may be remarked that intermediaries in each country leverage the most readily accessible government partnerships to influence SMEs. Whereas in South Africa the intermediary worked with department of energy to achieve targets in energy reduction, that in Kenya (and Uganda) work closely with the environmental management authority. It was gathered through the case study that the environmental regulator in Kenya – NEMA – was seeking to rebrand itself from a mere law-enforcer to a more collaborative and supportive agency. As part of this effort the regulator works closely with the NCPC. A similar situation obtains in Uganda:

“If NEMA goes, instead of closing [the company] they refer them to the Uganda Cleaner Production Centre which is promising ...”

– UCPC Technical Officer

No direct links may be established between the emphasis on intermediary neutrality in Kenya and the uniqueness of its national context (Table 7.4). However, it appears rather counter-intuitive that the emphasis on neutrality is prominent in Kenya but not Ghana. The Ghanaian intermediary (GNCPC) is hosted by and is a subsidiary of the Environmental Protection Agency (EPA). With such strong connection to a regulator, GNCPC is the intermediary expected to emphasize the need for neutrality. A potential explanation for this may be linked to the original establishment of the intermediaries. Unlike its Kenyan or Ugandan counterparts GNCPC began as an establishment of the regulator, i.e. the EPA, with a mandate to deliver compliance assistance programmes. Association with the regulator is integral or organic in GNCPC's case, whereas KNCPC and UCPC only began to associate with their respective regulatory agencies for special programmes years after establishment. This suggests that although intermediary neutrality is important in the delivery of sustainability support programmes, its importance is mediated by the nature of relationships between the intermediary and its partner organization.

7.3.2 Category #2: Performance drivers emphasised in only two intermediaries

Kenya and South Africa share an emphasis on two drivers – Public Awareness and Clarity of Intermediary's Goal. From Table 7.4 they also share a higher comparability than with other two countries in areas of manufactured exports share of total exports and manufacturing value added share in total GDP and population. However, no direct link may be drawn between both countries' contextual similarities and their unique emphases on the two drivers. Similarly, Kenya and Uganda share an emphasis on two drivers – Regulatory Pressure and Resource Availability in SME. These drivers are arguably universal (Hillary, 2000) in driving sustainability in SMEs. Key areas where Kenya and Uganda show closest similarities (and marked difference from other countries) from Table 7.4 are in being located in East-Africa, and in having a relatively high percentage of rural population. However, neither such details of contextual similarity nor other available data indicate provide suitable explanation. Flexibility of engagement process is a driver only emphasised in South Africa and Ghana.

Contextual similarities between both countries are found in three key areas (Table 7.4): Human Development Index (HDI), percentage of rural population and an initial programme donor. It is unclear whether there exists a relationship between contextual similarities of both countries and their unique emphasis on Flexibility of engagement process. Efficiency of engagement process is the final performance driver emphasised in two countries – South Africa and Uganda. However, it has been noted earlier in section 7.3 that South Africa and Uganda share limited contextual similarities markedly different from other two countries. Additional data collected through the case study do not suggest otherwise, thus no relationship between contextual parameters and efficiency of engagement process driver may be implied.

7.3.3 Other Inter-intermediary Observations

There are a number of notable observations in the nuances of national context and intermediary performance. For example, differences in intermediary size (Table 7.4) can be linked to differences in available support or funding. In GNCPC, UCPC, and KNCPC, interviewees identified inadequate government support as a major factor hindering growth, whereas in NCPC-SA the full support from government is alluded to as the major differentiator. Furthermore, given the differences in industrial size and composition between the Uganda, Ghana, and Kenya (Table 7.4), it would be expected the intermediaries in these countries would show corresponding differences between their sizes. However, no such differences are observed – all have roughly seven to eight staff.

One possible inference from the size observation is that intermediaries continue to operate with a certain maximum number of staff irrespective of national context unless additional support from government or other similar intervention is provided. It is worth pointing out that size does not feature directly as a driver of intermediary performance in the analysis of Chapter 5. However, it is logical to admit that intermediary size can be related to a number of drivers including intermediary's accessibility, resourcefulness and the evolutionary stage. A second useful observation pertains to intermediary location. From Table 7.4, it can be observed that all intermediaries have at least one office located in the industrial capitals of their respective countries. While this observation is almost certainly expected, it does illustrate critical aspects of a key driver – network and accessibility. The location of

intermediary offices in industrial capitals and hubs allow the intermediaries to access key members of industrial networks they serve.

“I’m hoping by December, we would have two people moved from Pretoria and one from Cape-town to go and have offices in Port-Elizabeth so that they could help the automotive industry directly sitting there.”

– NCPC-SA Director

It allows the intermediaries participate closely in industry events and other networking opportunities. It equally allows them to be seen as easy-to-access by the SMEs being served. This is a requirement of the accessibility driver under the External Profile category.

A third area of similarities and differences can be observed between intermediaries’ host institutions (Table 7.4). For NCPC-SA, KNCPC, and UCPC, the host institution is the prime country’s prime research and development institution. This indicates partly that sustainability in industries is considered within these countries as an issue of innovation and development. Being hosted by an R&D institution indicates being seen as novel and capable of adding value to the research institute’s work. However, in Ghana the intermediary is hosted by the Environmental Protection Agency. According to the director, the centre’s location in such institution has generated heated controversies in the past among international stakeholders. However, while this might appear as an aberration, the centre staff confirmed during interviews that the association with the EPA is a major contributing factor to their success since it allows them position their services as compliance assistance services – a driver of continued government support and a continuous source of clients.

“But because of just the combination of regulatory and what we call the compliance promotion and compliance enforcement, we are never lacking clients to work with”

– GCPC Director

In view of how to improve performance, respondents in KNCPC highlighted the possibility of being formally adopted by or integrated with the Kenyan environmental regulator as a promising option:

“The only way we are getting these industries to participate in our programmes is we are now working with NEMA [environmental regulator] very closely. Initially we had a compliance assistance programme where it was voluntary. But we are going in a way that we are going to make this participation in some of the projects mandatory”

– KNCPC Technical Officer

The observation made on intermediary host can be linked to the network element of performance drivers. Being closely associated with a central member of the industrial network, either as a partner or as a subsidiary allows unbridled access to SMEs. No clear linkages can be assumed to exist between differences in national contexts and the differences in the intermediary host. For instance, all other countries have similar agencies in charge of environmental protection which ensure compliance with environmental regulation among industries.

Appearing counterintuitive from a first glance is the difference between countries on the last row of Table 7.4 – expansion plans. A natural expectation might be that intermediaries with only one office would be on the verge of expanding to other locations while the intermediary with three offices – NCPC-SA – might maintain status quo. However, this clearly is not the case: NCPC-SA is the only intermediary on the verge of expanding to new locations. This observation can be linked to the amount of support available from government – while other intermediaries received only limited government support for expanding services or operations, NCPC-SA got increased funding that enhanced its expansion plan. The effect of increased funding was also observed in the centre’s creation of new units such as the marketing unit, its attempt to establish a research and development unit, and its venture into internships and graduate internship facilitation services. In terms of the identified drivers expansion plans could be linked to two key drivers under the External Profiles category – accessibility and expertise or resourcefulness. It could also be linked to the efficiency driver under the engagement process category, since the intermediary presence in multiple locations often allows a more direct contact with SMEs in a way that eliminates need for travels and logistical requirements. These linkages to drivers however are only suggestions since available data cannot validate their existence.

7.4 Public Organizational and Intermediary Performance Frameworks

What (if any) is the relationship between existing frameworks on public organizational performance and intermediary performance? A critical aspect of effective public service delivery is the performance management of public service providers, of which the intermediaries being currently studied are a type. This section compares the performance factors identified in this study with those of major performance frameworks in public organizational management.

In the study of public and private organizations, performance frameworks have been used extensively for analysis and management purposes. The modern performance tradition is believed to have evolved from post-WWII theories of organizational effectiveness (OE) (Rainey, 2014; Talbot, 2010). While OE frameworks tend to be constructed on unidimensional quantitative metrics such as output per employee or profit, the modern performance tradition tend to be different. Modern performance frameworks are multi-dimensional and can be quantitative, qualitative or be a mix of both. In the public organizations domain popular performance frameworks are the EFQM (European Foundation for Quality Management) model and the Baldrige model.

Defining suitable performance frameworks in the public domain can be particularly challenging due to the complex nature of mandates public organizations are tasked with, e.g. defend national security, or promote transition to low carbon economy. It is challenging to define the goals of these mandates in simple objective terms. Although multidimensional definitions are mostly favoured in academia and in practice, these also pose problems of choosing appropriate dimensions. Furthermore, there is often the need to form an aggregate view of performance by assigning values and weights to each dimension of the performance framework. This process however, leads to a broader range of dilemmas and challenges.

The challenges of performance frameworks have continued to pose problems to researchers leading to constant attempts to establish new and improved frameworks. As highlighted in Neely (2004) it is most appropriate for each discipline to develop and apply performance frameworks most suitable for assessing organizations in that discipline. That argument can be applied in the current case of intermediaries providing sustainability support programmes to SMEs. As highlighted in the literature

review chapter, existing body of literature have focused on SMEs and on policy in general. However, only limited attention has been paid to the intermediaries who deliver a key policy instrument – sustainability support programmes – to the SMEs. Suitable performance frameworks for assessing or managing intermediaries in this field are yet to be defined.

The EFQM framework is shown in Figure 2.10a. It was introduced in 1988 through a joint effort between 14 European multinational organizations and the European Commission. It features nine categories of criteria which are considered fundamental to any performance or quality improvement process at any level within the organization. EFQM is preferred in the field of TQM (Total Quality Management) due to its non-prescriptive nature. It recognizes that the changes that accompany performance improvement are multi-dimensional, non-linear and irregular. The EFQM conceptualizes two categories of performance drivers – enablers and results. However, it does not assume a simple causality between labelled as enablers and those labelled as results. Rather, it reckons a mutual interdependence between both categories.

Research suggests there is a widespread adoption of EFQM in organizations with estimates of over 30,000 across Europe. A wide range of studies have also shown that there is a positive correlation between adoption of the EFQM and improved organizational performance. The nine criteria of the EFQM comprise five enablers – leadership, people, strategy, partnerships & resources, and processes, products & services – and four results – people, customer, society, and business results. Organizations are encouraged to apply the EFQM framework as a self-assessment tool and to apply it iteratively in improving performance.

In Figure 2.10b is the Baldrige framework – a model introduced in the United States in 1987 to promote Total Quality Management and to develop American companies into world-leaders in every sector of the economy. Today, the Baldrige framework is used widely in over 20 countries including the US and New Zealand. It is deployed both at the organizational level for self-assessment and process improvement as well as at regional or industry-level for purposes of award and recognition. In the Baldrige award is run by the National Institute for Standards and Technology (NIST). The framework assesses organizations against seven categories of criteria – leadership,

results, strategic planning, customer focus, workforce focus, operations focus, and measurement, analysis, & knowledge management.

Similar to the EFQM the Baldrige model does not assume simple linear causal relationship between the defined criteria and performance results. Both the EFQM and Baldrige frameworks have similar components and similar applications. However, the differences between them lie in the emphases. The EFQM for example emphasizes taking a detailed look at results – it breaks up results into four independent categories unlike the Baldrige framework where Baldrige which maintains results as a single category. These differences in emphasis can be traced to the cultural differences between the origins of both frameworks – Europe and the US.

An alternative to popular performance frameworks used in the public domain is proposed by Talbot (2010). This is depicted in Figure 2.9. Talbot's framework is heavily influenced by both the EFQM and the Baldrige. Having identified shortfalls in the theoretical and practical applications of both frameworks, Talbot developed the new framework for application in public organizations. Talbot's framework is similar to the EFQM and the Baldrige in that they share a number of criteria, e.g. leadership, resources, and customer service. With the Baldrige, Talbot's framework also shares the similarity of maintaining the results category as a single entity whose definition can be varied or tailored to suit particular contexts. However unlike the Baldrige or EFQM framework, Talbot indicates less interactions or relationships between categories.

In Talbot (2010), it is emphasized that the juxtaposition appearing in Figure 2.9 does not imply relationships or interactions between categories – it only arises due to the constraint of 2-d schematic representation. The groupings of criteria into three however indicates a level of comparability or similarity between elements within each group. A distinct feature of Talbot's framework is its tailoring to public organizations – its results are defined as service outputs and social impact.

External Profile, SME context, engagement content, engagement process, strategic dilemmas, networks, governance are the key categories of drivers of intermediary performance identified in this study. They are argued to be the key areas to address when intermediaries undergo self-assessment, performance improvement programmes, or when they are being evaluated by an external body for funding,

awards, or other purposes. These six categories do not all appear in the three frameworks considered so far. However, certain parallels can be drawn:

Driver Category – The PEESIS Framework	Corresponding Category in Existing Frameworks		
	EFQM	Talbot	Baldrige
External Profile	<i>Limited correspondence</i>	Partly comparable to Values, Aim & Legitimacy	Partly comparable to Organizational Profile: Environment, Relationships and Challenges
SME context	<i>Limited correspondence</i>	Partly comparable to Customer Service	Partly comparable to Customer Focus
Engagement Strategy	Processes, Products & Services	Process, Customer Service	Process Management, Measurement, Analysis and Knowledge Management
Impact Strategy	Policy & Strategy	Strategy	Strategic Planning
Service Networks	Partnerships & Resources	Partnerships	<i>Limited correspondence</i>
Programme Resourcing	Leadership, Partnerships & Resources	Resources, People, Leadership, Structures, Governance	Workforce Focus

Table 7.5: Comparing elements of the new PEESIS framework to public organizational performance management frameworks

It can be observed from table 7.5 that there is a partial alignment between the drivers of intermediary performance and the categories of major public organizational performance management frameworks. Certain categories of intermediary performance drivers have corresponding categories across all three frameworks. An example is the Engagement Strategy category which readily compares with EFQM’s Processes, Products & Services category; Talbot’s Process category and Baldrige’s Operations Focus category. Similar correspondence applies to Impact Strategy. Although direct correspondence could not be established in all cases, for each category

of drivers there is at least one existing framework in which there is a comparable category.

The observation partly indicates that the categories of performance drivers emerging from this study are in alignment with existing frameworks. However, existing frameworks do not appear particularly tailored to suit the intermediaries being studied currently. The cases of limited correspondence or partial correspondence with existing frameworks indicate that existing frameworks do not fully apply to the intermediaries as they have a number of missing categories. For example, the EFQM limited recognition for the SMEs context, while Talbot's framework has no element that directly corresponds with engagement content. To bridge the alignment gap between alignment between the drivers of intermediary performance and the categories of major public organizational performance management frameworks, a new framework is required.

The newly proposed PEESIS framework (figure 7.2.1) may plug gaps in existing frameworks, in terms of its direct applicability to the intermediaries within the current research context.

Interrelationships between categories were not fully explored in the PEESIS framework. However, a number of potential interrelationships may be identified thus that allow categories to be juxtaposed similar to what obtains in existing frameworks. As an example, *Engagement Strategy* may be juxtaposed with *Impact strategy* since it is considered that the intermediary's approach to sustaining its impact, e.g. through constant follow-ups, is an integral component of the *Engagement Strategy* (Table 7.2).

Similar relationships may apply across other juxtaposed pairs. However, following the note of caution in Talbot (2010) such juxtaposition should not be immediately taken to imply relationships or interdependencies between categories. Again, borrowing from Talbot's framework, the "results" block of the new framework is tailored to reflect the preeminent view of performance in the current case – industry impact and national impact. Figure 7.2 provides a summary of the themes identified in the current study. Similar to the existing performance frameworks, the new framework is prescribed for self-assessment and external assessment of intermediaries. Similar to other frameworks, the new framework may also allow weights to be assigned to each

category while actual performance values may be established through surveys, archival analysis or other data collection methods.

7.5 Intermediary Performance and International Environmental Programmes for SMEs in Developing Countries

How are the international environmental programmes aimed at improving sustainability in developing countries' SMEs influenced by the intermediary's performance? In developing countries, it has been noted that sustainability adoption in industry remains in its embryonic stages (Lund-Thomsen & Lindgreen, 2016). The international community, through various development programmes are however, helping to provide sustainability support programmes to SMEs in developing countries. This section examines relevant aspects of such international development programmes against the backdrop of new findings on intermediary performance drivers.

Sustainability support programmes in developing countries are a critical first step in achieving green industrialization in these countries. In its recent report on *Greening Africa's Industrialization*, the United Nations Economic Commission for Africa (UNECA) pointed out a number of steps for achieving green industrialization for the region (UNECA, 2016). Key among these steps is promoting sustainability among the region's existing industries. Other key international stakeholders including the OECD, UNIDO, AfDB, ADB have also strongly supported the promotion of sustainability in developing countries' SMEs (ADB, 2013; AfDB, 2012; OECD, 2012; Oguntoye et al, 2018; UNIDO, 2016). Branded with different labels such as *Cleaner Production*, *Pollution Prevention*, *Circular Economy*, *Sustainable Manufacturing*, *Waste Minimization*, *Industrial Symbiosis*, and *Environmentally Sound Manufacturing* among others, a wide range of international development programmes to promote sustainability among developing countries' SMEs exist.



Figure 7.2: Illustrating the link between SMEs in developing countries and international support (Source: Hillary, 2000)

The role played by international development agencies in the mechanism depicted in figure 7.2 has been of particular attention in recent studies (Fayyaz et al, 2017). Finance for sustainability support programmes and other climate-related finance projects has continued to grow despite stagnation in overall development aid flowing into developing countries (UNDESA, 2016). Within a three-year span – 2011 to 2014, the climate finance flows into developing countries for various mitigation projects including sustainability support programmes grew by 50% (UNFCCC, 2016).

Ranging from bilateral initiatives such as the Swiss government’s REPIC (Renewable Energy and Energy Efficiency Promotion in International Cooperation) programme, and the Germany-India resource efficiency partnership programme to the national initiatives such as the national cleaner production programme in South Africa and Kenya, Sustainability support programmes constitute a critical focal point for stakeholders within the green industrialization community. Sustainability support programmes are extremely important in developing countries. By focusing on improving energy efficiency – which is just one component of sustainability programmes – developing countries are capable of saving US\$600 billion a year by 2020 (Farrell and Remes, 2009).

7.5.1 The Challenge of Upscaling Impact

A challenge commonly noted in international development programmes, is the challenge of scaling-up impact. Despite the optimism of key international stakeholders, upscaling the impact of sustainability support programmes has remained largely unachieved. For example, the result of an evaluation exercise for sustainability support programmes conducted in 1994 – suggest that the pilot programmes have been successful, however there was the challenge of scaling up. Fast-forward to two-decades later, similar evaluation exercises were conducted including Luken et al (2016) and the findings were exactly the same! Despite over-20 years of lessons learned through the completion of several pilot projects across multiple contexts, the challenge of upscaling impact continued to linger. This is a significant challenge due to the criticality of sustainability support programmes to the overall green industrialization agenda of developing countries. The question then is, “how do we upscale the impact of these support programmes?”

Researchers have sought to advance understanding of approaches to address the upscaling challenge through providing reflections on pilot programmes (e.g. Luken et al, 2016) and through identification of success enablers or barriers (e.g. Silvestre & Silva-Neto, 2014; Agwa-Ejon & Fore, 2012). While extant literature has highlighted key issues with programmes, the literature has however given only limited emphasis to intermediaries (as established in Chapter 2). This implies that current ideas on upscaling impact have rested heavily on the assumption that intermediaries are inherently capable of delivering programmes with absolute effectiveness.

Such assumption is not necessarily true given the perceived inefficiencies of some of intermediaries especially in developing countries, where weak institutions, limited capacity and poor regulatory frameworks are prominent (Blackman, 2010). The intermediary is a dynamic and integral component of the impact equation. As shown in this study intermediaries have a variety of factors which determine their ability to deliver support programmes effectively and to deliver positive impact to SMEs. Categories of determining factors include the intermediary’s profile, its service network and programme resourcing.

Failing to give adequate consideration to the intermediaries, especially with regard to factors identified in this study, may be responsible for the

challenge of upscaling. Often internationally-sponsored programmes have underlying political agendas which put SME-based targets rather than intermediary-based targets as the core focus. Hence number of SMEs engaged, number of workshops conducted or total potential energy savings identified are the common indicators used in assessing programme success, as opposed to improvements in intermediary’s accessibility or improvements in its network centrality. Availability of motivated and competent staff as identified in this study is critical for intermediaries to perform effectively. In developing countries this is particularly challenging due to relatively low human development indices.

Internationally-sponsored support programmes not paying attention to such a critical factor, but mainly concerned with SME-based participation targets may not achieve desired impact on a large scale. On one hand internationally-sponsored projects help to provide finances and resources for sustainability support programmes while equally giving the sustainability agenda a significant political weight which might not be present locally (Easterly, 2007; Browne, 2006). However, on the other hand, international project sponsors have been accused of peddling poorly designed projects, of detached relevance to the local context, and with conspicuous intention to promote foreign ideologies, in what is sometimes tagged neo-imperialist assistance (Hancock, 1994).

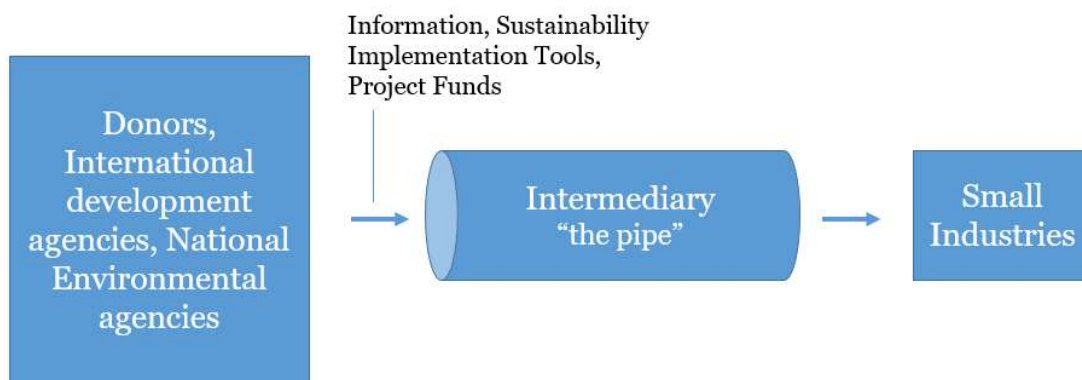


Figure 7.3 Conventional view of the Intermediary

It is argued here that support programmes failing to proactively focus on intermediaries are an example of poorly designed neo-imperialist projects, hence the upscaling failure. The currently dominant view of the intermediary may be described

as a “pipe-view” in which the intermediary is seen merely as a conduit for disseminating information to SMEs. Figure 7.3 illustrates this point. However, the evidence from this study suggests the intermediary plays a more active role which similar to Friedman and Miles (2002) may be described as “hand-holding”. Other analogies – e.g. “mother” or “driver” – may suffice to illustrate the centrality and criticality of the role played by the intermediary.

7.5.2 Managing the Growing Community of Service Providers

As the international development programme landscape witnesses participation from a widening array of local service providers and partners, it is important to understand what key competencies new entrants must possess for effective performance. The traditional local partners for internationally-sponsored support programmes in developing countries are government-affiliated agencies, NGOs and local subsidiaries of international organizations. For SME sustainability support programmes, the traditional partners include national cleaner production centres (Hillary, 2000). However, with growing calls to strengthen the local service delivery network (Luken et al, 2016), the range of local partners has widened significantly with more participation from grass-root agencies, industry associations, social start-ups and social-enterprises. As an illustration, the key providers of sustainability support programmes to SMEs in African countries were NCPCs. However, with the 2014 introduction of Switch Africa Green – an EU-sponsored initiative which focused heavily on sustainability support programmes for SMEs in six African countries – thirty-four agencies or grantees including NCPCs, industry associations and other local actors were involved.

The second phase of the programme which is to commence fully in 2019 is expected to involve an even greater number of local partners. Intermediaries in this study do not directly consider the growing diversity of service providers in donor-sponsored projects as a driver of their performance. However, they highlight the need to operate as part of a well-coordinated and resourceful network as important. This ensures SMEs receive a holistic support with minimal risk of incoherence or duplicated efforts. The diversification of service provider may be advantageous under appropriate coordination frameworks; however, it is yet unclear what competencies new entrants need in order to be effective in their mandate.

An approach to strengthening performance of the growing pool of service providers is through regional networking and knowledge exchange platforms. Funding for the SAG programme for example, has three key components - (i) Policy Support (ii) Green Business Development and (iii) Networking Facility. The third component is to ensure alignment between stakeholders at multiple levels and to foster regional exchange of best-practices between service providers. Another example of regional networking of service providers in developing countries is *RECPnet*. As a network of RECP (Resource Efficiency and Cleaner Production) service provider and stakeholders, *RECPnet* offers its members including NCPCs, a medium to discuss common challenges and share experiences on best practices.

Throughout this study, intermediaries do not emphasize their engagement with RECPnet, SAG networking forum or other similar platforms as a key influence on their performance. They do not emphasize the regional networking forums as a key source of knowledge or innovation. Although this observation may not suffice to draw a conclusion on the role of networking platforms, it does indicate there may be room to improve the relevance of these existing forums to the intermediaries. In particular, there may be room to improve these forums by ensuring they focus on the key performance drivers identified in this study. It can be argued that the ten key performance drivers of Section 7.1 represent intermediaries' most important concerns, thus only forums enhancing knowledge exchange along these areas of concern would have a positive impact on intermediaries.

Another prominent approach to knowledge exchange between intermediaries is the use of case studies. A typical example of a case study describing best practices from a successful intermediary is presented in Appendix C. The case study provides details of achievements of an intermediary. However, it offers limited insights on achievement of intermediary's centrality, strategy for sustaining impact, or other key areas of intermediaries' concerns identified in Section 7.1. The absence of such crucial insights might be responsible for limiting the effectiveness of case studies in facilitating knowledge exchange between service providers. Hence, it may be recommended for stakeholders to adopt alternative means of crafting case studies which address the key intermediary interests identified in this study. This may equally serve to bridge any language divide between intermediaries.

7.5.3 Co-opting Social Entrepreneurship

An important and potentially interesting question is how social entrepreneurship in developing countries may venture into providing SME sustainability support programmes similar to cleaner production centres. In developing countries and other world regions, social entrepreneurship is transforming both the social economy landscape and public service delivery landscape. A famous social enterprise example is M-Pesa in East Africa which has helped to provide access to financial services to previously unbanked rural dwellers. Another example is Zipline in Rwanda. Seventy percent of Rwanda's population live in rural areas where access to emergency medical supplies can be extremely challenging.

Zipline, a social enterprise partners with local health stakeholders to deliver emergency supplies using portable drones. Social entrepreneurship may be described as ventures led by individual(s) entrepreneurial committed to addressing social challenges using the mechanism of a business. They are rooted in ideologies most prevalent in the United States and have gained widespread penetration and recognition around the world over the past three decades (Ridley-Duff & Bull, 2015). In developing countries, the realization of the huge deficits in available public services is spurring a growing wave of social entrepreneurship. A growing array of award and recognition programmes have also been created to support the efforts of social entrepreneurs including awards from the Schwab foundation, One Acre Fund, Acumen Fund, Ashoka, and the Unreasonable Institute.

It has been observed that the flow of traditional ODA (official development assistance) from bilateral and multilateral donors have been on the decline while other forms of investment including venture philanthropism, and diaspora remittances have increased significantly. These all indicate there is a new era of private social enterprise growth in developing countries. How might social entrepreneurship therefore be engaged in enhancing the delivery of effective sustainable support programmes to SMEs in developing countries?

Two different perspectives may be taken to address the question on how social entrepreneurship may be co-opted. First, is that social entrepreneurship naturally not disposed to providing industry-type services but are focused more on community or social problems, hence are irrelevant for further consideration. This view is supported

by Kivimaa (2014) which suggests that studies of intermediaries in sustainability transitions of industries are better off focusing on government-affiliated intermediaries since private intermediaries tend to show less interest in such agenda. The author considers it most important to focus on government-affiliated intermediaries such as quasi-autonomous government agencies, government-owned companies or government-initiated foundations. In addition to the academic argument for a dismissal of the private social enterprise, certain empirical evidence also suggests that social entrepreneurship may be irrelevant in the SME sustainability support discourse. On the lists of awardees for the Schwab foundation, One Acre Fund, Acumen Fund, Ashoka, the Seif Awards and other prestigious award schemes, there are no social enterprises addressing the SME sustainability challenge. Such absence of any well-known example of a private social enterprise providing sustainability support service to SMEs in developing countries may be admissible in buttressing the dismissal perspective.

An alternative perspective may be taken on the relevance of social entrepreneurship. First, the existing theory of the social enterprise does not establish any specific limits to the nature of challenges which can be tackled by social entrepreneurship. Zahra et al (2008) provides a relevant argument through the opportunity-attribute theory of the social enterprise. They highlight the difficulty of defining the nature of opportunities pursued through social entrepreneurship, but highlight five key attributes: relevance, prevalence/pervasiveness, urgency, accessibility to others, and radicalness of solution sought. While the first three attributes pertain to the challenge being addressed, other two pertain to the solution being sought through social entrepreneurship. It can be argued that these attributes may apply in the SME sustainability support discourse, hence no real theoretical roadblocks to co-opting social entrepreneurship. Secondly, the intermediaries engaged during this study indicated the need to begin generating revenue and running more autonomously in a sustainable way:

"We have to look at different models ... We sit in a very risky position now [in] that, should government change and should RECP no longer be a priority and the current stakeholders that we have very close to NCPC be resigned, retired, get fired [or] whatever it is, and RECP is no longer a flavour of the century,

we could be in a very different situation ... So, I think that discussion [i.e. of self-sustaining financial models] is not even negotiable."

– NCPC-SA Regional Manager

"We don't take fee upfront ... when you [i.e. the SME] start reaping your dividends, pay us something."

– GNCPC Deputy Director

The expressions may be considered as tending towards a social enterprise model. Third, there is a consensus that the promotion of sustainability among SMEs requires innovative approaches (Luken et al, 2006). NCPC-SA can be said to be leading the pack in terms of innovation and service portfolio, which extends beyond mere cleaner production assessments. The innovativeness of this Centre is synonymous to social entrepreneurship (Zahra et al 2008), hence co-opting social entrepreneurship may be appropriate for making further impact. As one respondent puts it, social entrepreneurship could be engaged in the area of awareness creation and product verification to complement efforts of cleaner production centres:

"So these groups of social entrepreneurs should have capability to educate Kenyans or ... even be able to carry out the tests to ascertain that this eco-label creates the said benefits. And doing that would ... move all of us in the right direction, and the elements of green-washing would not be there ... We need somebody taking the product x, y, and z, and we can now test that that product is good ... That framework is weak at the moment, and that's where your guys [i.e. social entrepreneurs] - especially those good in this kind of stuff [i.e. tech] would be able to drive that"

– KIRDI Policy Scientist

From the Sustainable Development Goals framework, it can be observed that social entrepreneurship operates across all 17 goals. Goals #9 and #12 under which most

SME sustainability support fall are therefore not an exception. Finally, taking a cue from the findings on intermediary performance driver, there are no key drivers which appear out-of-reach for social entrepreneurship. All ten key drivers identified in this study arguably exist in one form or the other in every social entrepreneurship venture. Hence it can be concluded that international development programmes seeking to increase impact in the sustainable support programmes to SMEs in developing countries may do so through co-opting social entrepreneurs.

7.6 Key Learning

This chapter has attempted to address the research questions by examining the data on drivers of intermediary performance. Linkages between research questions, data analysis, key findings and theoretical contribution are summarized below.

Research Question #1	<ul style="list-style-type: none"> • What are the key drivers of an intermediary’s performance in the delivery of sustainability support programmes to SMEs in developing countries?
Data Analysis	<ul style="list-style-type: none"> • Grounded theory analysis of expert interviews in four NCPCs across Africa – South Africa, Ghana, Kenya, Uganda (Section 7.1)
Findings	<ul style="list-style-type: none"> • Evidence suggests there are ten key drivers of intermediary performance: intermediary's accessibility, resourcefulness, relevance of content, effectiveness of content, level of organizational commitment in SME, continuity of impact, programme constraints, network centrality, degree of network coordination, availability of competent and motivated staff • Eight additional factors may be classified as drivers: intermediary's neutrality, flexibility of engagement process, efficiency of engagement process, resource availability in SME, public awareness, regulatory pressure, clarity of intermediary's goal, and intermediary's evolutionary stage.

	<p>These eight are not considered “key” as there is limited evidence to support such qualification.</p>
Theoretical Contribution	<ul style="list-style-type: none"> • Previous studies have highlighted the importance of, and conceptualized the role of intermediaries. However, no known work has examined the intermediary performance drivers in the context of developing countries. Current findings are a contribution to the theoretical gap on intermediary performance drivers

Research Question #2	<ul style="list-style-type: none"> • How do drivers of intermediary performance compare with factors known to influence the uptake of sustainability by SMEs?
Data Analysis	<ul style="list-style-type: none"> • Comparative assessment between findings from the literature on uptake factors and the newly identified performance drivers (Section 7.2)
Findings	<ul style="list-style-type: none"> • There are similarities between factors identified in existing literature and findings of this study, including: Attitudes and Company culture (Hillary, 2004) which corresponds to Level of organizational commitment in SME (from new findings). Table 7.2 shows full list of similar factors. • Evidence from this study suggests a range of new factors (or drivers) of SME sustainability uptake exist: programme constraints, availability of motivated competent staff, efficiency of engagement process, continuity of impact, flexibility of engagement process, intermediary's evolutionary stage, intermediary's neutrality and clarity of intermediary's goal

Theoretical Contribution	<ul style="list-style-type: none"> • Extant literature has identified key factors affecting the uptake of sustainability by SMEs. This study has expanded the existing literature by showing that there are a number of additional factors (i.e. intermediary performance drivers) which affect sustainability uptake in SMEs within the developing country context • It is hypothesised that the difference between existing literature and the current study arises due to the differences between data sources: while previous studies have focused mainly on SMEs thus identifying SME-oriented factors, this study has focused mainly on intermediaries thus identifying factors linked to the intermediary
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Research Question #3	<ul style="list-style-type: none"> ▪ How do contextual differences between countries influence performance of an intermediary? (Section 7.3)
Data Analysis	<ul style="list-style-type: none"> • Desk research on local contexts of NCPCs in four African countries • Comparative analysis of performance driver emphases between NCPCs • Comparison of contextual differences with differences in performance driver emphases
Findings	<ul style="list-style-type: none"> • Evidence suggests the intermediary's evolutionary stage – a driver of performance – is influenced by the level of government commitment and/or the occurrence of a nationally critical event such as an energy crisis. Both contextual factors are enhanced by the presence of a strong industrial infrastructure, presence of strong pool of local expertise, a solid legislative framework, and minimal competing priorities of government

	<ul style="list-style-type: none"> Evidence suggests the association of an intermediary with national regulatory institutions may influence its performance since neutrality and network centrality are performance drivers. However, the level of influence may vary between countries depending on the stage at which the association is established
Theoretical Contribution	<ul style="list-style-type: none"> Existent literature on organizational performance recognize the role of external context. However, there are no known theories explaining linkages between external context and specific performance drivers in intermediaries promoting sustainability in developing countries. This study addresses the theoretical gap This study identifies intermediary's evolutionary stage and network neutrality as two performance drivers affected by the intermediary's national context
Research Question #4	<ul style="list-style-type: none"> What (if any) is the relationship between existing frameworks on public organizational performance and intermediary performance?
Data Analysis	<ul style="list-style-type: none"> Comparison between key literature-identified organizational performance frameworks and newly-developed conceptual framework on intermediary performance drivers (Section 7.4)
Findings	<ul style="list-style-type: none"> Evidence suggests there are strong similarities between categories of intermediary performance drivers and categories defined in established public performance management frameworks

	<ul style="list-style-type: none"> Evidence suggests that existing performance management frameworks may be tailored further to suit intermediary analysis or assessment
Theoretical Contribution	<ul style="list-style-type: none"> Existing organizational performance frameworks often provide a generic view of the organization. A new performance framework based on drivers of intermediary performance, i.e. the PEESIS framework (figure 7.1.) is proposed as an improved alternative to existing frameworks

Research Question #5	<ul style="list-style-type: none"> How are the international environmental programmes aimed at promoting sustainability among developing countries' SMEs influenced by the intermediary's performance?
Data Analysis	<ul style="list-style-type: none"> Literature review on international environmental support programmes for SME in developing countries Comparison with new findings on intermediary performance drivers (Section 7.5)
Findings	<ul style="list-style-type: none"> A key challenge of international environmental programmes for SME support in developing countries is the challenge of upscaling impact after a successful pilot. Finding ways to improve impact is a concern for all key stakeholders Existing literature identify factors relating to programme constraints – limited funding, short project duration, etc. – as responsible for determining the performance of the intermediary. However, this study shows a number of intermediary performance drivers may be critical to

	<p>programme success, e.g. factors relating to the SME context, the service networks and the intermediary's external profile</p> <ul style="list-style-type: none"> • Managing knowledge exchange between the growing communities of intermediaries which deliver internationally-sponsored SME support programmes is a key challenge widely reported in practice and in the literature. • There is limited literature on whether or to what extent social entrepreneurship could be leveraged in the delivery of internationally-sponsored SME support programmes in developing countries. However, evidences identified in this study suggest social entrepreneurship may be leveraged successfully
Theoretical Contribution	<ul style="list-style-type: none"> • Current study contributes a range of new hypotheses on the relationship between intermediary performance and the international environmental programmes: that a more detailed outlook on intermediary performance drivers (1) in programme design would lead to improved programme impact (2) in managing knowledge exchange between intermediaries would cause an improvement in the exchange process (3) would improve the viability of new (and non-traditional) intermediaries such as private social enterprises

8.1 Contribution to Knowledge

Intermediary performance in the context of delivering sustainability support programmes to SME manufacturers in developing countries has hitherto remained under-researched. This dissertation began with a central research questions and four additional questions to help improve understanding of the intermediary performance within the current context:

1. What are the key drivers of an intermediary's performance in the delivery of sustainability support programmes to SMEs in developing countries?
2. How do drivers of intermediary performance compare with factors known to influence the uptake of sustainability by SMEs?
3. How do contextual differences between countries influence performance of an intermediary?
4. What (if any) is the relationship between existing frameworks on public organizational performance and intermediary performance?
5. How are the international environmental programmes aimed at promoting sustainability among developing countries' SMEs influenced by the intermediary's performance?

The contributions of this study in addressing the above questions may be summarized under the research questions:

Question #1: What are the key drivers of an intermediary's performance in the delivery of sustainability support programmes to SMEs in developing countries?

- Available evidence suggests there are ten key performance drivers namely: Intermediary's Resourcefulness; Intermediary's Accessibility; Relevance of Content; Effectiveness of Content; Level of Organizational Commitment

in SME; Continuity of Impact; Programme Constraints; Network Centrality; Degree of network coordination; and Availability of competent and motivated staff. There are eight additional performance drivers (Table 7.1) which could not be labelled “key” given the available evidence.

- Previous studies have highlighted the importance of, and conceptualized the role of intermediaries. However, no known work has examined the intermediary performance drivers in the context of SME manufacturers in developing countries. Current findings are a contribution to the theoretical gap on intermediary performance drivers

Question #2: How do drivers of intermediary performance compare with factors known to influence the uptake of sustainability by SMEs?

- Ten out of the eighteen identified drivers are found clearly present in the literature. However, eight additional factors – particularly those exclusively related to the intermediary – appear new, thus constituting a contribution to knowledge. These are highlighted in Section 7.2.
- Extant literature has identified key factors affecting the uptake of sustainability by SMEs. This study has expanded the existing literature by showing that there are a number of additional factors (i.e. intermediary performance drivers) which affect sustainability uptake in SMEs within the developing country context
- It is hypothesised that the difference between existing literature and the current study arises due to the differences between data sources: while previous studies have focused mainly on SMEs thus identifying SME-oriented factors, this study has focused mainly on intermediaries thus identifying factors linked to the intermediary

Question #3: How do contextual differences between countries influence performance of an intermediary?

- Evidence suggests the intermediary's evolutionary stage – a driver of performance – is influenced by the level of government commitment and/or the occurrence of a nationally critical event such as an energy crisis. Both contextual factors are enhanced by the presence of a strong industrial infrastructure, presence of strong pool of local expertise, a solid legislative framework, and minimal competing priorities of government (see Section 7.3)
- Evidence suggests the association of an intermediary with national regulatory institutions may influence its performance since neutrality and network centrality are performance drivers. However, the level of influence may vary between countries depending on the stage at which the association is established.
- Existent literature on organizational performance recognize the role of external context. However, there are no known theories explaining linkages between external context and specific performance drivers in intermediaries promoting sustainability in developing countries. This study addresses the theoretical gap
- This study identifies intermediary's evolutionary stage and network neutrality as two performance drivers affected by the intermediary's national context

Question #4: What (if any) is the relationship between existing frameworks on public organizational performance and intermediary performance?

- Evidence from this study shows that certain aspects of intermediary performance for not previously captured in existing public management frameworks. For example, the SME context – a key performance driver of intermediaries – is not captured by popular frameworks such as Baldrige, Performance PRISM and EFQM. (See Section 7.4)
- Existing organizational performance frameworks often provide a generic view of the organization. A new performance framework based on drivers

of intermediary performance, i.e. the PEESIS framework (figure 7.1.) is proposed as an improved alternative to existing frameworks

Question #5: How are the international environmental programmes aimed at promoting sustainability among developing countries' SMEs influenced by the intermediary's performance?

- Current study contributes a range of new hypotheses on the relationship between intermediary performance and the international environmental programmes: that a more detailed outlook on intermediary performance drivers (1) in programme design would lead to improved programme impact (2) in managing knowledge exchange between intermediaries would cause an improvement in the exchange process (3) would improve the viability of new (and non-traditional) intermediaries such as private social enterprises

Table 8.1 Contribution to Knowledge

8.2 Implications for Research

There are two key implications for research in this study. First implication is that subsequent research in the field of SMEs and sustainability need to recognize and incorporate the intermediary-related factors in their analysis of drivers or barriers to SME sustainability adoption. The argument is based on the logic set forth by existing studies: existing studies have identified that intermediaries are critical to the uptake of sustainability by SMEs (Hillary, 2004); this study has highlighted factors critical to the intermediary; hence the findings of this study are critical to the uptake of sustainability by SMEs, thus they should be included in subsequent research. Subsequent studies integrating the role of drivers of intermediary performance can be useful for enhancing policy formulation and for improving support programme design. This is because a comprehensive outlook on the universe of key factors affecting the

uptake of sustainability by SMEs must be taken to ensure adequacy design and implementation of support policy (Chittock and Hughey, 2011; Parker et al, 2009).

Second implication is the need to incorporate new trends into the theoretical discourse on SME and sustainability. It has been identified in the literature review (chapter 2) that three key trends are redefining the current field: the changing conceptual view of SMEs in relation to sustainability, the growing integration of established theories from adjacent fields into the SME and sustainability discourse, and the increasing segmentation and in-depth analysis of SMEs. The implication is that subsequent research using the new findings on intermediary's performance drivers need to incorporate the three emerging trends. Already it has been argued that the three trends are opening up new frontiers of theory-building. The changing conceptual view of the SME in relation to sustainability for example, has opened up new research into Sustainability-Oriented Innovation (SOI) – a newly emerging field in innovation studies. This began with the seminal work of Klewitz and Hansen (2014) who while studying SMEs and sustainability re-conceptualized the SMEs and created SOI as a new framework for understanding SME practices. Taken along with the broader view of key drivers identified in this study, the trends in SME and sustainability research could advance research into new fields such as SME sustainability innovation network systems. Already, studies such as Klewitz (2017), and Klewitz et al (2012) have made in-roads in this direction.

8.3 Implications for Practice

Findings of this study have two key implications for practice. First the study offers the community of experts and practitioners who run sustainability support programmes for SMEs, a common language to discuss lessons, challenges and opportunities experienced by various intermediaries. A common practice is to prepare reports or case studies on intermediaries that have performed exceptionally well and to share these with other similar intermediaries as part of the knowledge transfer agenda. This is the case with National Cleaner Production Centres programme where certain NCPCs such as the NCPC-SA and NCPC Viet-Nam have been widely hailed as exemplars of good practice, and have been described through various case study documents. However, from the researcher's point of view these documents are limited in that they

do not always use a consistent language leading to possible misinterpretation; and they hardly provide insights on reasons behind good performance. The impression is that these documents are merely intended to report outcomes to programme sponsors. The findings of this study may provide a means for making case studies, lessons-learned and other similar documents better structured, informative and useful to other intermediaries and stakeholders.

Using the NCPC programme example, there has been the establishment of RECPnet – a network of intermediaries which is intended to facilitate knowledge sharing and exchange. However, this network and similar forums fall short in that first they tend to focus on high-level discussions with mainly leaders of NCPCs and government and international donor representatives in attendance. This limits the opportunity to exchange lessons between intermediaries at the required granular or operational level. Available evidence also suggest that intermediaries do not always find such networking meetings important to their success. By using the findings on performance drivers in this study, practitioners can adopt a common method of conveying good best practices with rich contextual insights in a focused and concise manner. The study also provides an opportunity for development of templates and tools, e.g. for brainstorming, facilitation, assessment, and troubleshooting, etc. of intermediaries.

A second and equally important implication pertains to the international development community. As intermediaries such as the NCPCs rely heavily on support from international donors through project contracts, it becomes important for donors to understand what factors are most important to the effectiveness of these intermediaries. In practice, international donors tend to consider their interactions with intermediaries through the limited lenses of the provided funds and the programme targets. Cost-effectiveness is often used as the key selection and evaluation criteria.

The intermediary is almost always seen as a “blackbox” or “pipe” into which funding is deposited on one end while water savings, energy savings, waste reduction – and other measures improved sustainability performance of SMEs – emerge on the other end. However, this study has shown that such a passive outlook on intermediaries is extremely limited, inconsiderate and perhaps detrimental to support programme success. A range of factors including the intermediary’s strategic dilemmas, its

network attributes, and its external profile should equally be considered throughout the donor-intermediary engagement life-cycle. Donors need to actively invest in developing capacity of intermediaries along these performance dimensions in order to achieve optimal programme impact.

8.4 Limitations

Contributions of this study may not conclusively address all five research questions posed in Chapter 1. Whereas the research questions allow a variety of perspectives to be taken in exploring intermediary performance, this study may be reflective of only one perspective. For example, the research question focuses on developing countries in general whereas the current study only addresses cases in Africa. Although this study makes no outright claim on conclusiveness, it however contributes original insights (summarized in Section 8.1) to a relatively under-researched subject.

Methodological limitations of this study are

- general inability of the post-positivism paradigm to produce a singular definitive answer (section 3.10)
- the use of the grounded theory approach (section 3.4.4)
- the use of purely qualitative data (section 3.10)
- the focus on only intermediaries or exclusion of other potentially relevant stakeholders (section 3.10)
- the volume and quality of available data (section 3.10)
- possibility of interpretational biases (section 3.10)
- the limited statistical generalizability of case study research (section 3.10)

These limitations are discussed in sections indicated in parentheses.

The investigation of four countries with different history and experience with NCPC is not considered a limitation of the current work. A clear sampling logic has been provided in Section 5.1.1. Countries are selected based on the theoretical sampling logic of grounded theory research. Differences between countries are critical for this study as they help address research question #3. Despite the differences, the selected

countries are also considered sufficiently similar to be grouped under the heading of developing countries, which is the focus of the main research question.

Generalizability of the conclusions of this study might be questioned; however, the author is unaware of any evidence to suggest that the conclusions are inapplicable to other intermediaries operating in a similar context (i.e. promoting sustainability principles among small industries in developing countries). While the statistical generalizability of the current conclusions might require additional analysis, it can be argued that this study meets criteria for analytical generalizability of case study research (Yin, 2013). Given that appropriate reliability checks, including member-checking, saturation, and triangulation between intermediaries, have been applied it becomes possible to suggest that the current conclusion is analytically generalizable to intermediaries in a similar context.

8.5 Future Research

Three key areas could be explored in subsequent research:

First is on organizational learning among intermediaries. As noted in Senge (1990) organizations may be considered as “living systems” for which learning is critical not only for survival but for evolution and development. One of the interviewees of this study noted,

“There’s already a big move internationally towards you know sustainability business models. We find a lot of companies in South Africa still being stuck at efficiency. You have companies in other countries - developing countries and developed countries - already moving towards sustainable business models. So, I think the next step for NCPC South Africa is to be able to ride that wave, and to hook unto that element of sustainability.”

“Research and Development is going to be important for an organization like NCPC. We need to have a very good organizational structure that speaks to research and development ... We would need to almost re-engineer our entire organization to speak to those

sustainability requirements and sustainability objectives that would be required of us”

- NCPC-SA Regional Manager

These statements reveal a key concern among intermediaries, particularly those in developing countries to become proactive in learning and development. Understanding the process of learning and development in intermediaries could provide opportunities for improving their performance in the delivery of sustainability support programmes to SMEs. It could help in providing adequate higher-order support, i.e. support for the support providers. Potential questions in this area would be, how is organizational learning conceived in intermediaries delivering sustainability support programmes to SMEs? What are the key barriers, challenges, drivers and enablers of learning in these organizations? How does learning in the intermediaries influence their performance in the delivery of their support programmes?

Second suggestion pertains the modalities of knowledge exchange between intermediaries. It is yet unclear if new ways of framing reports or case studies about intermediaries, such as one based on the findings of this study, can be applied to improve engagement during networking and knowledge exchange forums. It has been argued that intermediary knowledge exchange platforms, such as the RECPnet in the case of NCPCs, are not participant-driven but donor/funder-driven; tend to address only high-level – or national/regional – issues; and ultimately yield limited learning experience for intermediaries. It is therefore important to examine if or whether alternative ways of framing lessons, case studies, and other content exchanged on such network platforms have an impact on intermediary engagement and learning. The findings made in this study could serve as a useful starting point.

A third area where further research could add value to the current study is on the intermediary’s perception of their roles in relation to the drivers of their performance. It has been highlighted in existing literature that intermediaries play a range of different roles (Howells, 2006) within their networks. This study advanced the understanding of intermediaries by identifying the drivers of their

performance. However, it is unclear whether the drivers identified so far have any relationships with the roles already established in the literature. Subsequent studies could be tailored to fill this knowledge gap. A case study approach similar to that used in this study is strongly recommended for addressing this gap.

Research in the three suggested areas would invariably supplement the findings of this study, and potentially improve the overall body of knowledge on how to best promote sustainability among small businesses in developing countries.

8.6 Key Learning

The need to explore intermediaries in their delivery of sustainability support programmes to SME manufacturers in developing countries cannot be overemphasized. SMEs are a formidable component of sustainable industrial development agenda globally. SMEs make up over 90% of all businesses globally and are responsible for over 63% of all employment in low income countries. They contribute a significant share of global manufacturing and are responsible for over 50% of GDP in Africa. SMEs are equally a significant source of pollution and other forms of and environmental and social degradation through a continued application of unsustainable production practices. It is therefore important for stakeholders, including governments, academia, and industry to expedite sustainability support programmes delivered to the SME sector. However, while research attention has focused more on support programmes in general, there has been only limited focus on the intermediary – particularly in the developing country context. Without a full grasp of what is responsible for performance of an intermediary, it becomes challenging to design and implement effective support programmes.

This study has contributed to the existing literature on the intermediary by exploring the drivers of the intermediary's performance in its delivery of sustainability support programmes to SME manufacturers in the developing country context. Six categories of drivers are identified: intermediary's profile, impact strategy, network, capacity development, SME context and programme constraints. Key relationships with these performance drivers have been identified and presented as a set of hypotheses in

chapter 7. The ultimate argument of this study is that intermediaries are not a mere “blackbox” whose internal effectiveness is inconsequential to the success of sustainability support programmes. Rather they are an active, dynamic, and evolving component whose internal performance could unlock new levels of efficiency, innovation, and impact if given adequate attention. This new view of intermediaries needs to be adopted both in subsequent research on sustainability in SMEs and in the practice of support programme delivery. Only through such re-orientation can the goal to promote widespread adoption of sustainability among small industries of developing countries be actualized.

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Appendix: Interview data analysis

	Interview I – Director		Interview II – Project Manager (Communications & Marketing Unit)		Interview III – Head of Communications & Marketing		Interview IV – Project Manager (Metals, Manufacturing)		Interview V – Project Manager (EMS) 1 [Session 1]		Interview VI – Project Manager (EMS) 1 [Session 2]		Interview VII – Special Programmes Co-ordinator		Interview VIII – Multiple Participants		Interview IX – Project Manager (SAG)		Interview X – Project Manager (Tourism)		Interview XI – Project Manager (EMS) 2		Interview XII – Project Manager (Agro-Processing)		Interview XIII – Project Manager (EMS) 3		Interview XIV – Senior PM/Regional Manager (Durban)		Interview XV – Senior PM/Regional Manager (Cape-Town)		Interview XVI – Director of Skills & Training		Interview XVII – Project Manager (Industrial Symbiosis)	
Q1	WW/ WDW, KTO, KC		WW/ WDW, ATB		WW/ WDW, ATB, KTO		WW/ WDW, KC																			WW		WW/ WDW, ATB, KTO		WW/ WDW				
Q2																																		
Q3		WDW, ATB, KC		WW/ WDW, ATB, KTO, KC	WW/ WDW, ATB, KTO, KC	WW	WW/ WDW		WW/ WDW, ATB, KC	WW/ WDW, ATB, KC	WW/ WDW, ATB, KC	WW/ WDW, ATB, KC	WW/ WDW, ATB, KC	WW/ WDW, ATB, KC	WW/ WDW, ATB, KC	WW/ WDW, ATB, KC	WW/ WDW, ATB, KC	WW/ WDW, ATB, KC	WW/ WDW, ATB, KC	WW/ WDW, ATB, KC	WW/ WDW, ATB, KC	WW/ WDW, ATB, KC	WW/ WDW, ATB, KC	WW/ WDW, ATB, KC	WW/ WDW, ATB, KC	WW/ WDW, ATB, ATB	WW							
Q4	WW/ WDW, ATB					WW, ATB	ATB, KC		WW/ WDW, ATB	WW, KTO	WW/ WDW, ATB, KC													WW, ATB	ATB, KTO				ATB, KC					
Q5			WDW, ATB, KTO																							WDW, ATB, KTO, KC			WW, ATB, KTO					
Q6	WW/ WDW, ATB, KTO, KC	WDW, ATB, KTO, KC	WW/ WDW, ATB, KTO, KC	WW/ WDW, KC	WW/ WDW, ATB, KTO, KC	WW/ WDW, ATB	WW/ WDW, ATB, KC	WW/ WDW, ATB	WW, ATB, KC	WW/ WDW, KTO, KC	WW/ WDW, ATB, KC	WW/ WDW, ATB, KTO, KC	WW/ WDW, ATB, KTO, KC	WW/ WDW, ATB, KTO, KC	WW/ WDW, ATB, KTO, KC	WW/ WDW, ATB, KTO, KC	WW/ WDW, ATB, KTO, KC	WW/ WDW, ATB, KTO, KC	WW/ WDW, ATB, KTO, KC	WW/ WDW, ATB, KTO, KC	WW/ WDW, ATB, KTO, KC	WW/ WDW, ATB, KTO, KC	WW/ WDW, ATB, KTO, KC	WW/ WDW, ATB, KTO, KC	WW/ WDW, ATB, KTO, KC	WW/ WDW, ATB, KTO, KC	WW/ WDW, ATB, KTO, KC	WW/ WDW, ATB, KTO, KC	WW/ WDW, ATB, KTO, KC	WW/ WDW, ATB, KTO, KC	WW/ WDW, ATB, KTO, KC			
																																		Limited Relevance

Q7		WDW, ATB, KC															
Q8	WW/ WDW, KTO	WW/ WDW, ATB, KTO, KC	WDW, ATB			WW, ATB, KTO											
Q9	ATB, KC	WW/ WDW, ATB, KC		KC								WW, KC	WW/ WDW, ATB, KC	ATB, KC	KC		
Q10	WW/ WDW, ATB, KC	WDW, ATB, KC	WDW, ATB, KC	ATB, KC	WDW, ATB, KTO, KC	WW/ WDW, ATB, KTO					WDW, ATB, KTO, KC	WDW, ATB, KTO, KC	WDW, KC	WW/ WDW, ATB, KTO, KC	ATB, WDW	WW/ WDW, ATB, KTO, KC	

Table Ia. South Africa Interview Analysis Stage 1 – Transcript coding

(Key: WW/WDW=What Works/What Doesn't Work; ATB = getting from A to B or how to improve the existing; KTO = Key Trends and Opportunities; KC = Key Challenges)

Related ideas				Memo
WW/WDW	ATB	KC	KTO	
[I, 4], [III, 6], [V, 3], [VI, 3], [IX, 6], [X, 6], [X, 3], [XI, 4], [XIII, 3], [XIII, 6], [XIV, 3]	[I, 4], [II, 6], [II, 3], [VI, 6], [VII, 6], [X, 3], [XI, 4], [XI, 10], [XII, 3], [XIV, 3], [XIV, 4], [XIV, 10], [XV, 6], [XVI, 6]			Following up and building long-term relationships with SMEs; Engaging in relationships that could result in development of new case studies [[1]]
[III, 3], [III, 6], [III, 10], [V, 3], [VI, 1], [IX, 6], [XI, 3], [XIII, 4], [XIV, 9], [XIV, 10]	[I, 6], [II, 6], [III, 6], [III, 10], [VI, 10], [VII, 4], [XI, 6], [XI, 10], [XII, 6], [XIII, 4], [XIV, 10], [XIV, 9], [XVI, 5]			Boosting the intermediary's human capacity through hiring, training, and adequate professional development support (including mentoring) [[2]]
[II, 6], [III, 6], [IV, 3], [V, 6], [IX, 3], [X, 3], [X, 6], [XI, 3], [XI, 4], [XIII, 3], [XIV, 6]	[III, 6], [V, 4], [V, 6], [V, 10], [VII, 6], [XII, 3], [XIII, 6], [XIV, 6]			Targeting only the high-priority SMEs, i.e. being selective and not trying to "please everyone" [[3]]
[I, 4], [II, 6], [III, 8], [I, 6], [III, 8], [V, 3], [VI, 1], [VI, 10], [IX, 6], [X, 3], [XIII, 6], [XIV, 6], [XV, 6]	[I, 4], [I, 9], [I, 10], [III, 5], [III, 8], [IV, 3], [IV, 10], [V, 3], [XIV, 6], [XV, 9], [XVI, 4]			Progressing to programs and projects with higher-order national significance; Playing cross-cutting roles (e.g. targeting all major energy consuming sectors, providing policy advisory); Not being stuck at delivering assessments [[4]]
[II, 8], [II, 9], [III, 10], [IV, 3], [IV, 6], [IV, 10], [V, 1], [VIII, 6], [X, 6], [XII, 3], [XII, 10], [XIII, 4], [XIII, 6], [XIV, 6], [XIV, 9], [XIV, 10]	[I, 6], [II, 9], [VIII, 6], [XI, 3], [XI, 10], [XII, 3], [XII, 6]			Having staff who are competent, aware of their strengths and passionate about RECP and committed to delivering high quality service as a team [[5]]

[II, 9], [II, 10], [III, 1], [III, 6], [V, 1], [V, 3], [V, 6], [VI, 6], [IX, 3], [IX, 4], [IX, 6], [XI, 6], [XIII, 3], [XIII, 10], [XIV, 6], [XIV, 10], [XV, 3], [XV, 6]	[III, 5], [III, 6], [III, 10], [VII, 6], [XI, 3], [XIII, 6], [XIV, 17], [XIV, 10]		[XVI, 6]	Adopting more impact-oriented KPIs. Evolving from a pure assessments-oriented or output-oriented approach [[6]]
[I, 1], [III, 1], [III, 6], [IV, 3], [V, 6], [VI, 6], [IX, 3], [X, 6], [XI, 6], [XII, 6], [XIII, 3], [XV, 4]	[II, 10], [III, 6], [VII, 6], [XI, 3], [XI, 10], [XII, 3], [XII, 6], [XIV, 10], [XV, 3], [XVI, 10], [XI, 10],			Partnering with complementary institutions to provide a holistic solution to SMEs [[7]]
[I, 4], [II, 8], [II, 9], [III, 6], [V, 6], [V, 3], [VI, 3], [VI, 4], [XI, 3], [XII, 3], [XIV, 6], [XVI, 3]	[II, 3], [II, 6], [II, 7], [V, 3], [VI, 4], [XIII, 6]			Providing demonstrable evidence of effectiveness such as case studies from similar and familiar industries. Case studies need to be thorough, factual and clear; and perhaps presented directly by the case company [[8]]
[I, 4], [III, 1], [III, 6], [IV, 6], [V, 3], [VIII, 3], [X, 6], [XII, 3]	[V, 3], [V, 10], [VI, 4], [VII, 6], [XVI, 4]			Targeting SMEs proactively, directly, and relentlessly to raise awareness [[9]]
[III, 1], [IV, 3], [IV, 6], [V, 6], [VII, 3], [X, 3], [XI, 3], [XI, 6], [XIII, 3], [XIII, 9], [XV, 1], [XVI, 6]	[V, 6], [IX, 3], [XIII, 3]	[IV, 6], [V, 3], [V, 10], [IX, 6], [X, 3], [X, 6], [XI, 3], [XII, 3], [XII, 6], [XIII, 3], [XIII, 6], [XIII, 9], [XIII, 10]		Having commitment from a substantial number of SME's management or key company personnel/champions [[10]]
[I, 6], [III, 6], [VII, 6], [XII, 3], [XIV, 5], [XIV, 9], [XV, 1]	[II, 8], [II, 9], [IV, 3], [XI, 10], [XII, 6], [XIV, 6], [XIV, 9], [XIV, 10], [XV, 1], [XV, 9], [XV,			Constantly learning from experience, and from international trends & best practices; and upgrading accordingly [[11]]

	10], [XVI, 6], [XVI, 10]			
[III, 1], [IV, 3], [V, 6], [XI, 6], [XII, 3], [XIV, 6], [XV, 1]	[X, 3]			Providing solutions relevant to company's practical objectives: no unnecessary 'theory' or 'melting planet' narratives [[12]]
[I, 4], [III, 1], [IX, 4], [IX, 6], [X, 3], [X, 6], [XII, 6], [XV, 3], [XV, 6], [XVI, 1], [XVI, 3]	[II, 6], [III, 10], [X, 3], [XI, 6], [XII, 3], [XV, 3], [XV, 6], [XVI, 4], [XVI, 6]			Building capacity within the company through a hands-on approach; and targeting overall behaviour change [[13]]
[I, 4], [II, 3], [II, 8], [III, 6], [X, 3], [X, 6], [XI, 3], [XII, 3], [XIV, 6]	[II, 6], [IX, 4], [XIV, 4], [XIV, 6]			Executing projects within time and budget and with highest operational efficiency [[14]]
[I, 6], [II, 3], [II, 6], [II, 8], [IV, 6], [VI, 8], [IX, 4], [XI, 6], [XV, 1]	[XI, 4], [XVI, 10]			Outsourcing projects to consultants when (and only when) necessary [[15]]
[I, 1], [I, 6], [III, 1], [V, 1], [V, 3], [VI, 8], [XIII, 6], [XIV, 6], [XV, 1]	[V, 10], [VI, 10]			Setting goals aligned to key national priorities [[16]]
[II, 9], [V, 6], [IX, 6], [X, 4], [XI, 3], [XII, 6], [XIV, 3]	[V, 3], [XIV, 4]			Leveraging existing links for targeting and influencing the companies [[17]]
		[II, 9], [III, 6], [III, 10], [IX, 6], [XII, 3], [XIII, 6], [XIV, 6], [XIV, 9], [XIV, 10], [XV, 6]		Challenges of poor management & communication structure within the intermediary leading to conflicting purposes [[18]]
[III, 1], [V, 3], [X, 3], [X, 6], [XI, 3], [XI, 6], [XII, 3], [XIII, 3]	[II, 9], [III, 1], [V, 10], [XI, 10], [XIV, 4], [XIV, 10]			Being flexible and recognizing the differences and peculiarities of industries [[19]]

		[I, 6], [I, 9], [IV, 3], [IX, 3], [IX, 6], [XI, 6], [XII, 3], [XIV, 3]		Overcoming attitudinal barriers; Convincing the SMEs, and other key stakeholders [[20]]
[II, 6], [IV, 6], [V, 1], [V, 6], [XI, 3], [XI, 10], [XIV, 10]	[II, 6], [II, 8], [II, 9], [VI, 6]			Demonstrating competence or expertise when engaging industry. Able to attract demand [[21]]
[III, 5], [III, 8], [XIV, 5]	[I, 4], [II, 8], [III, 8], [IV, 3], [V, 1]			Operating along other actors in a coordinated manner ("healthy" competition is welcome), but with no duplication and no conflicting efforts [[22]]
		[I, 9], [III, 10], [XI, 4], [XII, 10], [XIV, 5], [XIV, 9], [XVI, 6]		Constraining terms of project (including absence of capacity building for SP staff leading to overdependence on foreign donor) [[23]]
[III, 1], [VI, 4], [IX, 3], [XV, 6]	[IX, 3], [X, 3], [XIV, 6]			Delivering service through multiple media for reinforcement depending on scenario, but ensuring consistency across all media [[24]]
[II, 6], [III, 5], [III, 10], [XIII, 6],	[II, 6], [III, 5], [III, 10], [VI, 6], [VI, 10], [XII, 10], [XV, 3], [XV, 10]	[XII, 6]		Defining a clear focus for the Centre in terms of specific short- and long-term strategic agenda [[25]]
[I, 1], [I, 6], [IV, 3], [V, 1], [XIII, 6], [XV, 1], [XVI, 9]	[IV, 3]		[V, 10]	Operating in a country with solid economic, legislative, and knowledge infrastructure. Economy is competition or private-sector-driven [[26]]
[V, 6], [IX, 3], [X, 6]	[II, 9], [XI, 4]			Tailoring the provided solution to suit individual SME's needs (i.e. considering the SME's data, their production process, their industry etc.) [[27]]
[I, 1], [I, 6], [V, 1], [VI, 1], [XIV, 1], [XIV, 6], [XIV, 10], [XV, 1]	[XIV, 6], [XIV, 10]			Having operations supported by a strong, reputable and resourceful host institution [[28]]
[X, 6], [XII, 6], [XIII, 6], [XVI, 3]	[IX, 6]			Yields visible significant benefits when applied (especially in the short-term) [[29]]

[VI, 1], [XIII, 3], [XV, 6]	[I, 10], [I, 6], [XIV, 6], [XV, 6]			Being easy-to-access through having a local presence and offering affordable services [[30]]
		[III, 10], [IX, 6], [XI, 6], [XIII, 9], [XIV, 10]		Bureaucratic delays to operation from host institution. Host institution not being accessible, nor sufficiently supportive [[31]]
[I, 1], [I, 6], [IV, 1], [XIII, 6], [XV, 1]	[XVI, 10]			Operating where there is growing alertness for environmental issues from government and the public (including where there is a dedicated professional body for RECP services) [[32]]
[I, 6], [I, 8], [VI, 8], [XVI, 10]	[I, 4], [I, 8], [II, 8], [III, 8], [VI, 8]			Supporting other similar institutions in a coordinated and mutually beneficial manner [[33]]

Table Ib. South Africa Interview Analysis Stage 2 – Clustering Related Ideas/Creation of Memos
(Key: [X, Y] = [Interview #, Question #]; [[X]] = [[Cluster Number]])

1, 13, 25	2, 5	3, 4, 14, 15	6, 11	7, 21	8, 29	9, 30	10, 20	12, 27	16, 18	17, 28	19, 24	22, 31, 33	23	26, 32
Sustainability of Impact	Availability of competent and motivated staff	Efficiency of Engagement Process	Intermediary's Evolutionary Stage	Intermediary's Resourcefulness	Effectiveness of Content	Intermediary's Accessibility	Level of Organizational Commitment in SME	Relevance of Content	Clarity of Intermediary's Goal	Network Centrality	Flexibility of Engagement Process	Degree of network coordination	Programme Constraints	Public Awareness

Table Ic. South Africa Interview Analysis Stage 3 – Theme identification through memo association

	Interview I – AGI Chief Executive Officer	Interview II – AGI Technical Officer	Interview III – AGI Program Manager	Interview IV – GNCPC Director	Interview V – GNCPC Assistant Director	Interview VI – UNDP SAG National Co-ordinator	Interview VII – MTI – Industrial Promotion Officer	Interview VIII – MTI – SME & Tech Division Manager	Interview IX – Impact Hub Accra – Community Officer	Interview X – British Council Consulting Project Manager	Interview XI – British Council Business Devt. Consultant	Interview XII – UNEP SAG Programme Co-ordinator	Interview XIII – SAG Networking Forum
Q1	Limited Relevance	Limited Relevance	Limited Relevance	WW/WD W, ATB, KTO	WW,	WW/WD W, ATB, KTO	Limited Relevance	Limited Relevance	Limited Relevance	Limited Relevance	Limited Relevance	Limited Relevance	Limited Relevance
Q2													
Q3													
Q4				WW/WD W, ATB, KTO, KC	WW, ATB, KC								
Q5				WW, ATB, KC	WW, ATB, KTO, KC	ATB, KC							
Q6				WW/WD W, ATB, KC		WW/WD W							
Q7				WW/WD W, ATB, KC									
Q8				WW, KTO, KC	WW/WD W, ATB KTO	WW, ATB, KC							
Q9				WW/WD W, ATB, KC	KC								
Q10				WW/WD W, ATB, KC	WW, ATB, KTO, KC								

Table IIa. Ghana Interview Analysis Stage 1 – Transcript coding

(Key: WW/WDW=What Works/What Doesn't Work; ATB = getting from A to B or how to improve the existing; KTO = Key Trends and Opportunities; KC = Key Challenges)

Related ideas				Memo
WW/WDW	ATB	KC	KTO	
[IV, 1], [V, 8], [VI, 8]				Providing solutions relevant to company's practical objectives: no unnecessary 'theory' or 'melting planet' narratives [[1]]
[IV, 1], [V, 1], [VI, 8]				Tailoring the provided solution to suit individual SME's needs (i.e. considering the SME's data, their production process, their industry etc.) [[2]]
[IV, 1], [V, 1], [V, 10], [VI, 1]				Holding an influential position within regional, sectoral, national and/or supply networks [[3]]
[IV, 1], [IV, 7]	[IV, 5], [IV, 9], [V, 4], [VI, 5]			Building capacity within the company through a hands-on approach; and targeting overall behaviour change [[4]]
[V, 1], [VI, 6]	[IV, 4], [IV, 7]			Being flexible and recognizing the differences and peculiarities of industries [[5]]
[IV, 1], [IV, 4], [IV, 5], [IV, 7], [IV, 6], [VI, 1]	[IV, 1], [V, 8]			Partnering with complementary institutions to provide a holistic solution to SMEs [[6]]
[IV, 6], [V, 5]	[IV, 4], [IV, 10], [VI, 5]			Leaving the SMEs with self-help tools for sustained impact [[7]]
[IV, 1], [IV, 10], [V, 10], [VI, 1]	[IV, 4]			Having operations supported by a strong, reputable and resourceful host institution [[8]]
[IV, 10], [V, 10], [VI, 1]	[IV, 10]			Maintaining transparency and credibility by routing key information such as transactions details through host institution [[9]]
		[IV, 9], [V, 4], [V, 10], [VI, 8]		Overcoming attitudinal barriers; Convincing the SMEs, and other key stakeholders; [[10]]

Table IIb. Ghana Interview Analysis Stage 2 – Clustering Related Ideas/Creating Memos

(Key: [X, Y] = [Interview #, Question #]; [[X]] = [[Cluster Number]])

Memos with a common theme						
1, 2	3, 8	4, 7	5	6	9	10
Relevance of Content	Network Centrality	Sustainability of Impact	Flexibility of Engagement Process	Intermediary's Resourcefulness	Degree of network coordination	Level of Organizational Commitment in SME

Table IIc. Ghana Interview Analysis Stage 3 – Theme identification through memo association

	Interview I – KNCPC Deputy Director	Interview II – KNCPC Technical Officer 1	Interview III – KNCPC Technical Officer 2	Interview IV – KNCPC Affiliate Consultant	Interview V – ARSCP Country Representative	Interview VI – NEMA Compliance Manager	Interview VII – NETFund Programme Officer	Interview VIII – KIRDI Senior Research Scientist	Interview IX – KIRDI Energy Expert	Interview X – Kenya GDC Environmentalist	Interview XI – GearBox Project Manager	Interview XII – KCIC Research & Policy Officer	Interview XIII – UNDP SAG Quarterly Meeting	Interview XIV – KEPISA Project Officer (SAG)	Interview XV – NEMA – KNCPC IS Workshop	Interview XVI – KNCPC Project Manager (Industrial Symbiosis)
Q1	WW, KC	WW,	WW, KC	WW, KTO	WDW, KC	Limited Relevance	Limited Relevance		WW	Limited Relevance	Limited Relevance	Limited Relevance	Limited Relevance	Limited Relevance	Limited Relevance	Limited Relevance
Q2																
Q3	WW/WDW, ATB, KC	KC	ATB, KC	WDW, KC	WDW, KC			ATB, KTO, KC	WW, KTO, KC							
Q4	WW, ATB, KC	WW, ATB, KC	WW, ATB, KC	ATB, KTO	ATB			ATB								
Q5	WW, KC		WW	KC				WDW, ATB, KTO, KC								
Q6		WW/WDW, KC	WW, ATB	ATB					ATB							
Q7								WW, ATB, KTOM, KC								
Q8	WW/WDW, ATB, KC	WW/WDW, ATB, KTO, KC	WW, ATB, KTO, KC	ATB, KC	WW/WDW, ATB, KTO, KC			WDW, ATB, KTO, KC	ATB, KTO							

Q9	KC	ATB, KC													
Q10	ATB, KC	WW, ATB	ATB, KC	ATB, KC	WW/ WDW, ATB, KC			WDW, ATB, KC	ATB						

Table IIIa. Kenya Interview Analysis Stage 1 – Transcript coding

(Key: WW/WDW=What Works/What Doesn't Work; ATB = getting from A to B or how to improve the existing; KTO = Key Trends and Opportunities; KC = Key Challenges)

Related ideas				Memo
WW/WDW	ATB	KC	KTO	
[II, 4], [II, 6], [II, 8], [III, 1], [III, 8]	[I, 8], [II, 8], [III, 8], [III, 10], [IV, 4], [IV, 6], [IV, 8], [V, 10], [VIII, 4], [VIII, 7], [IX, 8], [IX, 10]			Partnering with complementary institutions to provide a holistic solution to SMEs [[1]]
		[I, 8], [II, 8], [III, 8], [IV, 8], [V, 1], [V, 3], [V, 8], [V, 10], [VIII, 8]		Challenges of institutional coordination with other intermediaries and stakeholders (including excessive pressure, partners' unwillingness to take risks) [[2]]
[I, 1], [II, 4], [II, 6], [II, 8], [VIII, 7], [VIII, 8]	[I, 8], [IV, 8], [V, 8], [V, 10], [VIII, 5], [VIII, 8]			Operating along other actors in a coordinated manner ("healthy" competition is welcome), but with no duplication and no conflicting efforts [[3]]
[III, 6], [VIII, 7]	[II, 10], [V, 10]			Building capacity within the company through a hands-on approach; and targeting overall behaviour change [[4]]
		[II, 3], [III, 1], [III, 3], [IV, 3], [IV, 5], [VIII, 5], [VIII, 8], [VIII, 10]		Overcoming attitudinal barriers; Convincing the SMEs, and other key stakeholders [[5]]

[I, 3], [II, 1], [II, 4], [II, 10], [III, 1], [IV, 3]				Yields visible significant benefits when applied (especially in the short-term) [[6]]
[I, 5], [III, 1], [III, 6]	[III, 8], [III, 10], [V, 10], [VIII, 4], [VIII, 7]			Leveraging existing links for targeting and influencing the companies [[7]]
[I, 3], [I, 6], [III, 6], [VIII, 4], [VIII, 5]	[III, 3], [IV, 8]	[I, 6], [II, 3], [II, 6], [III, 3], [III, 6], [IV, 3]		Having commitment from a substantial number of SME's management or key company personnel/champions [[8]]
		[I, 3], [IV, 3], [VIII, 10], [IX, 3]		Challenges of SME's lack of access to affordable finance [[9]]
		[I, 9], [I, 10], [II, 4], [II, 9], [II, 8], [IV, 3], [IV, 10], [V, 1], [V, 3], [V, 8]		Challenges of limited and unpredictable project-based funding [[10]]
		[I, 1], [I, 10], [II, 9], [IV, 3], [VIII, 8], [VIII, 10]		Intermediary's limited human resource in terms of size and skill range [[11]]
[I, 5], [III, 6], [V, 1]				Being flexible and recognizing the differences and peculiarities of industries [[13]]
[I, 5] [II, 4], [II, 6], [III, 6]				Providing demonstrable evidence of effectiveness such as case studies from similar and familiar industries. Case studies need to be thorough, factual and clear; and perhaps presented directly by the case company [[14]]
[IV, 1]	[V, 4], [V, 10], [VIII, 3], [VIII, 5]			Setting goals aligned to key national priorities [[15]]
[III, 1], [V, 10], [IX, 3]	[III, 4], [V, 10]			Existence of regulations or supportive policy framework to drive RECP implementation [[16]]
[I, 6], [III, 6]	[I, 8], [II, 9], [III, 3]			Following up and building long-term relationships with SMEs; Engaging in relationships that could result in development of new case studies [[17]]

[IV, 1], [V, 3], [V, 8], [VIII, 5], [VIII, 8], [VIII, 10],	[V, 8], [VIII, 5]		Operating where there is growing alertness for environmental issues from government and the public (including where there is a dedicated professional body for RECP services) [[18]]
		[II, 3], [V, 3], [VIII, 8]	Challenges of SME's suspicion or fear of intermediary's involvement with regulators; or of sensitive data being exposed to competition. [[19]]
		[I, 4], [I, 5], [II, 6], [II, 9], [V, 1]	Constraining terms of project (including absence of capacity building for SP staff leading to overdependence on foreign donor) [[20]]
	[III, 3], [IV, 4], [IV, 6], [V, 8], [V, 10]		Delivering service through multiple media for reinforcement depending on scenario, but ensuring consistency across all media [[21]]
		[I, 8], [II, 9], [V, 8]	Challenges of limited visibility of the intermediary; SMEs unawareness of available services [[22]]

Table IIIb. Kenya Interview Analysis Stage 2 – Clustering Related Ideas/Creating Memos

(Key: [X, Y] = [Interview #, Question #]; [[X]] = [[Cluster Number]])

Memos with a common theme													
1	2, 3	4, 17	5, 8	6, 14	7	9	10, 20	11	13, 21	15	16, 18	19	22
Intermediary's Resourcefulness	Degree of network coordination	Sustainability of Impact	Level of Organizational Commitment in SME	Effectiveness of Content	Network Centrality	Resource Availability in SME	Programme Constraints	Availability of competent and motivated staff	Regulatory Pressure	Clarity of Intermediary's Goal	Public Awareness	Intermediary's Neutrality	Intermediary's Accessibility

Table IIIc. Kenya Interview Analysis Stage 3 – Theme identification through memo association

	Interview I – UCPC Director [Session 1]	Interview II – UCPC Deputy Director	Interview III – UCPC Technical Officer (Eco-Innovation)	Interview IV – UCPC Technical Officer (Lake Victoria Project) [Session 1]	Interview V – UCPC Technical Officer (Industrial Symbiosis)	Interview VI – UCPC Technical Officer (Lake Victoria Project) [Session 2]		Interview VII – UCPC Director [Session 2]	Interview VIII – UCPC Director [Session 3]	Interview IX – NFT Mawazo Group CEO	Interview X – NFT Mawazo Project Manager	Interview XI – OutBox Capacity Development Lead
Q1	WW/ WDW ATB, KC	WW/ WDW	WW, KC	WW, KTO	WW, KC		Limited relevance	Interview VII – UCPC Director [Session 2]	Interview VIII – UCPC Director [Session 3]	Interview IX – NFT Mawazo Group CEO	Interview X – NFT Mawazo Project Manager	Interview XI – OutBox Capacity Development Lead
Q2		WW	WW, KC		WW, KTO							
Q3												
Q4	WW/ WDW, KC	WW, ATB	ATB, KC	ATB	WW/ WDW, KTO							
Q5		WDW, ATB, KC	WW, ATB	WW, ATB, KC	WW							
Q6	WW/ WDW, KC	WW/ WDW, ATB, KC, KTO	WW/ WDW, ATB, KC, KTO	WW/ WDW, ATB, KC	WW/ WDW, KC	ATB, KTO, KC						
Q7					KC							
Q8	WW/ WDW, KTO	WW/ WDW, ATB, KC	WW/ WDW, ATB, KTO	ATB, KTO, KC	WW, KC	WW/ WDW, ATB, KC						
Q9	KC, ATB	WW/ WDW, KC, ATB	KC	WW, KC	WW, KC							
Q10	ATB, KC, KTO	WW/ WDW, ATB, KC	WW, ATB	ATB, KC, KTO	WW, ATB, KTO							

Table IVa. Uganda Interview Analysis Stage 1 – Transcript coding

(Key: WW/WDW=What Works/What Doesn't Work; ATB = getting from A to B or how to improve the existing; KTO = Key Trends and Opportunities; KC = Key Challenges)

Related ideas				Memo
WW/ WDW	ATB	KC	KTO	
[I, 1], [II, 6], [III, 1], [IV, 2], [V, 6], [VI, 8]				Yields visible significant benefits when applied (especially in the short-term) [[1]]
[I, 10], [II, 10], [IV, 4], [VI, 8]	[III, 5], [V, 10]			Operating where there is growing alertness for environmental issues from government and the public (including where there is a dedicated professional body for RECP services) [[2]]
[II, 1], [III, 5], [IV, 1], [V, 5]	[I, 1]			Building capacity within the company through a hands-on approach; and targeting overall behaviour change [[3]]
[I, 1], [I, 6], [I, 8], [II, 4], [II, 10], [IV, 8], [IV, 10], [V, 1]	[II, 5], [II, 6], [II, 8], [II, 9], [III, 4], [III, 6], [III, 8], [V, 6], [V, 10]			Partnering with complementary institutions to provide a holistic solution to SMEs [[4]]
		[I, 1], [I, 2], [I, 9], [II, 5], [III, 6], [IV, 6], [IV, 8], [V, 6]		Overcoming attitudinal barriers; Convincing the SMEs, and other key stakeholders [[5]]
[I, 6], [II, 2], [II, 5], [II, 6], [III, 1], [III, 2], [IV, 2], [IV, 6], [IV, 8], [V, 6]	[V, 10]			Providing demonstrable evidence of effectiveness such as case studies from similar and familiar industries. Case studies need to be thorough, factual and clear; and perhaps presented directly by the case company [[6]]
[I, 6], [II, 6], [III, 6], [IV, 6], [V, 6]	[II, 6]			Targeting only the high-priority SMEs, i.e. being selective and not trying to "please everyone" [[7]]
[I, 10], [III, 6], [IV, 4], [IV, 5], [V, 6]	[II, 5], [II, 6], [V, 10]			Charging a service fee to ensure financial sustainability of program and to ensure company commitment [[8]]
[I, 6], [III, 8], [IV, 6], [IV, 10]	[II, 8], [III, 4], [III, 5], [III, 6], [V, 10]	[I, 9], [III, 6], [IV, 6], [VI, 6]		Existence of regulations or supportive policy framework to drive RECP implementation [[9]]
[I, 1], [II, 1], [III, 2], [IV, 8], [IV, 9], [V, 2], [V, 4], [V, 9]	[II, 9]	[I, 1], [I, 2], [I, 6], [II, 6], [III, 2], [IV, 9], [V, 9]		Having commitment from a substantial number of SME's management or key company personnel/champions [[10]]

[I, 1], [I, 6], [II, 6], [II, 10], [III, 2]	[II, 6], [II, 9], [III, 6], [V, 4], [VI, 8]			Targeting SMEs proactively, directly, and relentlessly to raise awareness [[11]]
[I, 1], [II, 1], [II, 10], [III, 1], [IV, 6]	[II, 10]			Following up and building long-term relationships with SMEs; Engaging in relationships that could result in development of new case studies [[12]]
[II, 4], [II, 6], [IV, 8]	[II, 6], [II, 8], [III, 6], [III, 8], [VI, 6], [VI, 8]			Leveraging existing links for targeting and influencing the companies [[13]]
[I, 2], [III, 6]	[I, 9], [II, 6], [V, 6]			Contributing to implementation through pre-financing when companies demonstrate willingness [[14]]
[I, 1], [III, 6], [IV, 2]				Providing solutions relevant to company's practical objectives: no unnecessary 'theory' or 'melting planet' narratives [[15]]
[I, 1], [III, 6]	[IV, 10]			Tailoring the provided solution to suit individual SME's needs (i.e. considering the SME's data, their production process, their industry etc.) [[16]]
[II, 8], [II, 10], [III, 5]	[I, 10], [II, 4], [II, 5], [III, 6]			Having operations supported by a strong, reputable and resourceful host institution [[17]]
[I, 6], [I, 10], [II, 6], [VI, 8]				Having no hidden agenda, no negative previous experience with SMEs and being overall trustworthy [[18]]
[II, 10]	[III, 4], [V, 10]			Operating along other actors in a coordinated manner ("healthy" competition is welcome), but with no duplication and no conflicting efforts [[19]]
[I, 4]	[II, 10], [V, 8]			Executing projects within time and budget and with highest operational efficiency [[20]]
		[I, 10], [II, 5], [V, 6], [V, 9]		Constraining terms of project (including absence of capacity building for SP staff leading to overdependence on foreign donor) [[21]]
		[III, 4], [III, 6], [IV, 7], [VI, 6], [VI, 8]		Challenges of institutional coordination with other intermediaries and stakeholders (including excessive pressure, partners' unwillingness to take risks) [[22]]
[I, 6], [II, 6], [V, 6]	[II, 6]			Appreciating the importance of Reward & Recognition; and applying it in the program [[23]]
[I, 4], [I, 8], [II, 8]	[III, 8]			Outsourcing projects to consultants when (and only when) necessary [[24]]
[I, 4], [I, 9], [IV, 1], [V, 1]	[V, 8]			Having staff who are competent, aware of their strengths and passionate about RECP

				and committed to delivering high quality service as a team [[25]]
[II, 9]	[I, 10], [II, 6], [II, 9], [II, 10], [II, 4], [V, 10]			Intermediary's adoption of a viable financial sustainability strategy to overcome limitations of project funding [[26]]
		[I, 2], [II, 6], [IV, 8]		Challenges of poor organizational structure of SMEs [[27]]
		[II, 6], [II, 8], [II, 9], [III, 6], [V, 8]		Challenges of limited visibility of the intermediary; SMEs unawareness of available services [[28]]
		[II, 10], [III, 9], [V, 5]		Challenges of high staff turnover rate in SMEs [[29]]

Table IVb. Uganda Interview Analysis Stage 2 – Clustering Related Ideas/Creation of Memos

(Key: [X, Y] = [Interview #, Question #]; [[X]] = [[Cluster Number]])

Memos with a common theme												
1, 6	2, 9	3, 12, 23	4, 14	5, 10	7, 20, 24	8, 21, 26	11, 28	13, 17	15, 16	19, 22	25	27, 29
Effectiveness of Content	Regulatory Pressure	Sustainability of Impact	Intermediary's Resourcefulness	Level of Organizational Commitment in SME	Efficiency of Engagement Process	Programme Constraints	Intermediary's Accessibility	Network Centrality	Relevance of Content	Degree of network coordination	Availability of competent and motivated staff	Resource Availability in SME

Table IVc. Uganda Interview Analysis Stage 3 – Theme identification through memo association

