

**THE NATIONAL SKILLS FUND AND GREEN SKILLS:
TOWARDS A GENERATIVE MECHANISM APPROACH**

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ABSTRACT

The aim of the study was to investigate the role of the South African National Skills Fund (NSF) in responding to green skills training for the sake of better integration and optimal effectiveness in relation to the green economy in South Africa. The NSF is a multi-billion rand fund for skills development, with the responsibility to respond effectively to the country's skills development needs. Part of the NSF's mandate is to ensure the development of green skills in South Africa, with special reference to the allocation of grants, as a key mechanism in ensuring adherence to properly governed skills development funding requirements. This study considers the identification of green skills funding as a skills planning and implementation challenge within the post-school education and training context, the NSF, the green economy and related skills debates, both locally and globally. The study contributes to a growing body of research in South Africa that seeks a wider systemic perspective on green skills concerns. The NSF and its functioning is a critical dimension of the wider skills system and is a significant system element influencing further emergence of a coherent national system for green skills development. Providing further rationale for this study is the 2011 finding of the International Labour Organisation, that the green skills development system in South Africa is re-active and poorly systematised, a finding that was also noted in the first ever Environmental Sector Skills Plan for South Africa undertaken by the Department of Environmental Affairs in 2010.

As the study is mainly focused on one aspect of the policy system, namely the NSF's role in green skills funding, the bulk of the data used in this study is documentary. Research information was obtained from NSF documentary sources to describe the NSF organisationally. Information was also obtained from green skills documentary sources to obtain a better understanding of the nature and purpose of the development of green skills in South Africa. The study has also drawn on references related to grant management as a mechanism for seeding meaningful transformations and skills development research in South Africa to understand the skills development landscape, with special reference to the Department of Higher Education and Training's (DHET) post-school education and training system. Documentary data was supplemented by selected key respondent interviews from the skills sector and from the green skills research community to provide further perspective on the research focus.

Critical realism (CR) is utilised as a meta-theoretical framework that seeks to inform the overall academic reflection and interpretation process. The work of Danermark, Ekström, Jakobsen and Karlsson (2002), which describes the process of data analysis in critical realism, was adapted into a four-phased research approach for this particular policy study, which I framed as a Quadrilateral Policy Analysis Framework (QPAF). This provided a data analysis framework which allowed for taking account of the mechanisms shaping the NSF as an important systemic funding agency within South Africa's emerging post-school education and training context, as this relates to green skills. However, to further analyse this research question and context, I needed to work with substantive policy theory. Given the nature of the policy object that I was investigating, I found Feiock's (2013) Institutional Collective Action Framework to be a helpful substantive policy theory as it has adequate nuance with which I could describe the NSF's core function, namely that of grant-making for the post-schooling policy context.

Based on the critical realist meta-theoretical framework and the substantive policy theoretical frameworks, I developed four phases of analysis, namely a) *descriptive analysis* which is divided into Part A (describing the green skills landscape and its funding demands) and Part B (describing the NSF as it relates to green skills); b) *component analysis* which further analyses key components of the above; c) *abductive policy analysis* which identifies critical mechanisms and how they operate; and d) *generative mechanism analysis* which identifies the underlying generative mechanisms shaping the NSF's engagement with green skills (or lack thereof).

The following main findings are identified:

- It emerged that the responsiveness of the NSF to green skills is emergent, essential and yet multifaceted due to competing stakeholder interests, expectations and claims;
- Key strategic relations with critical role players within South Africa's skills levy funding matrix emerged as a fundamental requirement towards the achievement of the NSF's organisational mandate to respond effectively to national green skills needs and expectations;
- Contracting is the central mechanism driving the NSF grant-making process. Related to this is the finding that partnerships emerged as the most versatile and underutilised mechanism that cuts across all four of the NSF grant-making phases;

- The NSF's current method of making sense of funding policy indications as per national policy documents is too reductionist because the method betrays an alignment-mirroring form of sense-making awareness that uncritically endorses substratum philosophical assumptions like Human Capital Theory (HCT) and associated neoclassical economic theories embedded in the policy frameworks. These assumptions contradict and potentially limit engagement with wider theories and policy frameworks for guiding skills development that are oriented towards the wider common good as argued by non-anthropocentric orientations in critical realism and the green skills sector.

In summary, an argument is put forward that the NSF is a key funding mechanism towards green skills delivery in South Africa, but that this funding mechanism is under-utilised and inadequately mobilised for transitioning towards sustainability in South Africa. The study recommends that, in pursuit of better integration and optimal effectiveness thereof and in line with the fund's legislative, organisational and public mandate, a consensual negotiation skills planning mechanism be considered from an institutional collective action response platform.

In terms of recommendations for further research, it is proposed that a comparative analysis study could be considered between the NSF and other leading global funding agencies or other national skills funding mechanisms that are also concerned with the inclusion of green skills development. Comparative studies of this nature could potentially enhance the fund's policy-making process and assist in the development of more appropriate institutional arrangements towards optimal funding responsiveness. Lastly, in the light of the NSF's current contribution to green skills in the country, an impact evaluation study on the return on green skills investment presents an additional intriguing research endeavour which would contribute further perspective on the arguments presented in this study.

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A journey of manifold mechanisms of grace!

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Mothokemothokabatho – we coexist through interdependence.

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I address this submission in the name of my precious saviour, our Lord Jesus Christ! This world offers many roads to travel and different modes to reach interesting destinations. In the midst of the crazy business of life's travelling, the words of Jesus Christ echo: 'I am the way, the truth and the life' (John 14: 6).

Last but not least, I have coined the final Chapter 8 on this study project: 'The repairer of the breach' because I ultimately believe hope will manifest in the prophetic dream of the great prophet Isaiah in Chapter 58, verse 12, describing a vision of a restored environment and entrenching the strong confidence God has placed in the capacity of human beings and the physical organic environment to recuperate from dreadful conditions. The prophet says:

“And they that shall be of thee shall build the old waste places; thou shalt raise up the foundations of many generations; and thou shalt be called, the repairer of the breach, the restorer of paths to dwell in.”

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LIST OF ABBREVIATIONS

ABET	Adult Basic Education and Training
ANC	African National Congress
ASGISA	Accelerated and Shared Growth Initiative for South Africa
BESD	Basic Entrepreneurial Skills Development Project
BOTA	Botswana Training Authority
BRICS	Brazil, Russia, India, China and South Africa
CEDEFOP	European Centre for the Development of Vocational Training
CEO	Chief Executive Officer
CIDA	Canadian International Development Agency
COSATU	Congress of South African Trade Unions
CPSISC	Construction and Property Services Industry Skills Council
CPUT	Cape Peninsula University of Technology
CR	Critical Realism
DA	Delivery Agreement
DBSA	Development Bank of South Africa
DEA	Department of Environmental Affairs
DG	Director-General
DHET	Department of Higher Education and Training
DoL	Department of Labour
DPSA	Disabled People South Africa
DREIC	Description, Resolution, Elimination, Identification and Correction
DTI	Department of Trade and Industry
EDB	Economic Development Board
EDD	Department of Economic Development
EDP	Entrepreneurial Skills Development Practitioner
EE	Emerging Entrepreneurs
EPR	National Treasury Expenditure and Performance Review
ESDLE	Employment and Skills Lead Employer
ESDS	Employment and Skills Development
ESKOM	Electricity Supply Commission
ESSP	Environmental Skills Sector Plan
ETD	Education, Training and Development
FET	Further Education and Training
GAC	Grant Adjudication Committee
GDP	Gross Domestic Product
GEAR	Growth Employment and Redistribution Strategy
GIZ	German Society for International Cooperation
GTEC	Grant Technical Committee
GTSC	Grants Technical Specifications Committee
HCT	Human Capital Theory
HRD	Human Resource Development
HRDC	Human Resource Development Council
HRDSSA	Human Resources Development Strategy of South Africa
HSRC	Human Science Research Council
ICA	Institutional Collective Action Framework
ICT	Information and Communications Technology
ILO	International Labour Organisation
INDLELA	National Development of Learnerships, Employment Skills

INTAC	Integrated Nature-based Tourism and Conservation
IOE	International Organisation of Employers
IPAP	Industrial Policy Action Plan
ISC	Australian Industry Council
IT	Information Technology
ITF	New Zealand Industry Training Fund
ITUC	International Trade Union Confederation
JIPSA	Joint Initiative on Priority Skills Acquisition (South Africa)
LMIP	Labour Market Intelligence Partnership
M&E	Monitoring and Evaluation
MEA	Millennium Ecosystem Assessment
MIS	Management Information System
MOA	Memorandum of Agreement
MTSF	Medium Term Strategic Framework
NDP	National Development Plan
NEDLAC	National Economic Development and Labour Council
NEET	Not in Employment, Education or Training
NESPF	National Environmental Skills Planning Forum
NGO	Non-governmental organisation
NGP	New Growth Path
NLC	National Lottery Commission
NPI	National Productivity Institute
NRF	National Research Foundation
NSA	National Skills Authority
NSB	National Standards Bodies
NSDS	National Skills Development Strategy indicated I, II or III
NSF	National Skills Fund
NSFAS	National Student Financial Aid Scheme
NSLP	National Skills Development Landscape Proposal
OECD	Organisation for Economic Cooperation and Development
OFO	Organising Framework for Occupations
PER CAPITA	Australian Green Skills Research Project
PES	Payment for Ecosystem Services
PFMA	Public Finance Management Act
PSET	Post School Education and Training
QCTO	Quality Council for Trades and Occupations
QPAF	Quadrilateral Policy Analysis Framework
RFP	Request for Proposals
RRREIC	Resolution, Redescription, Retroduction, Identification and Correction
SANBI	South African National Biodiversity Institute
SAQA	South African Qualification Authority
SARETEC	South African Renewable Energy Technology Centre
SARS	South African Revenue Services
SAYCO	South African Youth Council
SCOPA	Standing Committee on Public Accounts
SDA	Skills Development Act, Act 97 of 1998
SDL	Skills Development Levy
SDLA	Skills Development Levy Act, Act 9 of 1999
SEDA	Small Business Development Agency
SETA	Sector Education and Training Authority

SGB	Standards Generating Bodies and Labour Assessment
SIPs	Strategic Integrated Projects
SMEDP	Small and Medium Enterprise Development Programme
SSP	Skills Support Funding Programme
TINA	There Is No Alternative
TUP	Training of Unemployed Persons Fund
TVET	Technical and Vocational Education and Training
UMALUSI	Quality Council for General and Further Education and Training
UN	United Nations
UNEP	United Nations Environment Programme
UNPFA	United Nations Population Fund
WIL	Work Integrated Learning
WP-PSET	White Paper for Post-School Education and Training

CHAPTER 1

THE FUNDING FACTOR: THE NATIONAL SKILLS FUND AND GREEN SKILLS

1.1 Introduction

Denise Ackermann (2003, p. 65), in her book *After the Locusts*, described the following stark South African reality: “As I write to you, poverty and unemployment are increasing, education and health care services are buckling under the strain of trying to meet the needs of our people, more corruption is being unearthed, and beneath all, the terrible spectre of HIV/AIDS silently stalks the lives of millions”. Although this was written in 2003, the issues remain the same. The South African National Development Plan (NDP) (National Planning Commission, 2012) seeks to respond to many of these challenges via a range of strategies, which include responding to poverty, environmental degradation and climate change risks via approaches such as potential expansion of sustainable development related green jobs and associated skills development trajectories. These responses have implications for state institutions such as the Department of Higher Education and Training (DHET), as will be made clearer across this thesis. As this research project is presented, I am mindful of this challenging context and I also propose that the research journey is not only about critique and analysis, but also about discovering hope, empowerment and pointers toward meaningful difference in the ambiance of national green skills funding.

The former Minister of Higher Education and Training, Minister Blade Nzimande, recently commented as follows on the National Skills Fund’s (NSF) Strategic Framework for Grant Allocation: “Owing to the dynamic nature of our development challenges and agenda, we believe this framework should not be static. For this reason we have made provision for it to come under review every two years to determine both its impact and relevance to development challenges of the day” (NSF, 2013a, p. 2). The former minister’s statement focuses on policy development implications and sees the NSF as a ‘national resource’ for skills development funding. Figure 1.1 below illustrates the NSF’s multi-billion worth and more importantly how the fund’s income has become compatible with its skills development investment with emphasis on the third National Skills Development Strategy (NSDS) III period (stretching from 2010-2018).

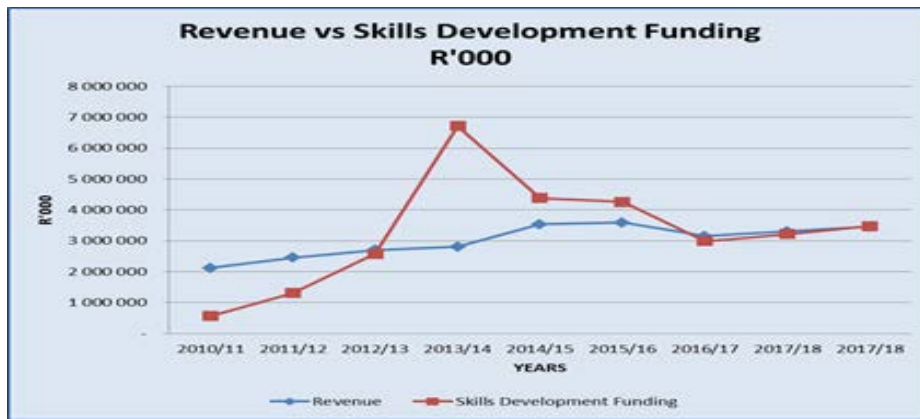


Figure 1.1 NSF revenue vs skills development funding (National Skills Fund Annual Plan: NSF, Annual Plan 2014/15)

1.2 Problem statement context: A skills funding policy dilemma

According to Bell, Brundrett and Dimmock (2006), the discipline of policy studies is generally constituted on the assumption that the policy process unfolds through a number of steps and manifests on a number of different planes. In order to make better sense of policy as an institutional imperative, it becomes important to view educational policy as a process and an issue of creative tension in which the interests of those affected are duly represented. Hence, any study on policy should take into account that the policy process is continuous and a highly contested space in which competing policy interests battle for power to shape policy according to their own interests. At the heart of the NSF as a funding organisation resides the fund's grant-making mechanism or function. For example, the NSF's grant-making criteria, with which prospective grantees should comply through a formal Request for Proposal (RFP) process in order to become eligible to receive grants, emerges as a good example of how a particular funding policy framework can become a contested space of competing interests. Prospective grantees have no guarantee of accessing funding and the grant application process becomes a highly contested policy arena where applicants must demonstrate due diligence in terms of funding readiness (NSF, 2013a).

In trying to capture the essence of what a policy is, Blakemore (2003) viewed policies as goals signalling a required action plan. Harman (1984) and Feiock (2013) agreed that policies are actually action-driven through a strategically designed purpose towards responding to challenges along the trajectory of goals. Hence, the notion that a policy statement is in actual

fact *a response action* in dealing with a challenge or issue of tension, the drive towards a particular objective.

Further, from an educational perspective, Bell et al. (2006) stated that educational policy emanates from prevailing values shaping the socio-political environment and emerging values in respect thereof. Educational policy discourse trends arise from dominant strategic policy directives. The impact of this manifests into broad policy appropriation *and responses* that are related to critical national concerns such as economy, health and education, raising the question of appropriate responsiveness of educational policy to wider contextual concerns. In line with the Skills Development Act of 1998, the five-year national skills development strategies (NSDS) emerge as good examples of how prevailing values and societal concerns drive dominant strategic skills development objectives (South Africa. Skills Development Act, 1998a) (the specifics of these policy responses are discussed in more detail in Chapters 4 and 5 and across the thesis argument). The institutional principles, operational practices and procedures, as per the terms of reference of the institutional arrangements, essentially constitute the boundaries of these broad policy initiatives related to relevant functional mandates and purposes (Dimmock, Stevenson, Shah, Bignold & Middlewood, 2005). Henceforth, the research study places a strong focus on the NSF's institutional arrangements, particularly from different *policy response platforms* e.g. legislative, strategic and governance policy frameworks.

Policy reflection processes usually expose limitations and boundaries. For example, Bell et al. (2006) contended that at the core of policy analysis reside different sense-making orientations relating to mainly policy conceptualisation, policy interpretation, policy issues and policy critique. Gordon et al. (1997, cited in Bell et al., 2006, p. 10) indicated that policy research could be categorised into two broad analysis categories, namely *analysis for policy* or *analysis of policy*. On the one hand, the first category (*analysis for policy*) indicates a) *policy advocacy* – here the aim of research is to promote the purpose of a given policy framework/s, and b) *information for policy* – the goal is to service policy decision makers with information and advice. On the other hand, in the second category (*analysis of policy*) one finds a) *analysis for policy determination* which seeks to unravel how policy is developed, it does not focus so much on the impact of policy, and b) *analysis for policy content* which seeks to investigate the following content matters of policies e.g. origin, objectives and operations. Lastly, *policy monitoring and evaluation* emerge in between the two extremes on a continuum and are

concerned more with the evaluation of impact and emphasises lessons learned for future consideration purposes.

In terms of this study, I draw on Feiock's Institutional Collective Action Framework (2013) for policy analysis, which is positioned within Gordon, Lewis and Young's (1997) first category of *analysis for policy*, with emphasis on b) analysis for policy information and advice towards better policy. This is because Feiock's ICA framework offers a strong focus on implementation and dilemma response modelling tendencies. In relation to Gordon's (ibid.) second category of *analysis of policy*, the reflection on the NSF grant-making function unfolds along the analysis trajectories of a) policy determination, and b) policy content because of the descriptive account of this function and the detailed explanation of the NSF's grant-making processes (see Chapter 6 for a more in-depth discussion in this respect). This study is constituted as an analysis *of* policy in order to inform analysis *for* policy, with emphasis on offering policy information and advice towards better policy.

Furthermore Taylor, Rizvi, Lingard and Henry (1997) suggested that policy analysis basically attempts to reflect on what kind of *responses* are made by governments (in the case of this study – what responses are made by the DHET via the NSF's grant-making function), why this is done and what the expected change is in terms implications and consequences. For example, although the Skills Development Act (Act 97 of 1998) (South Africa, 1998a) directs the NSF to fund priorities emanating from the National Skills Development Strategies (NSDSs) or other relevant policy documents like the New Growth Path (2010), these priorities were not clearly defined in terms of the mandate of the NSF. The NSF therefore had to define its own priorities at the risk of funding initiatives that might fall outside the scope of national growth policies, while resources remain locked in five-year strategic priority periods as defined by the periods of the National Skills Development Strategies (NSF, 2013a) (see Chapter 4 for further discussion on this).

Another example is cited by the NSF's Strategic Framework for Grant Allocation (2013a), which indicates that grant resources were historically allocated on a sectoral basis due to the fragmented and segmented sector education and training authority (SETA) landscape. A detailed description thereof is offered in Part B of the descriptive analysis in Chapter 3. The following quote from the NSF Strategic Framework for Grant Allocation (NSF, 2013a) captures the new cross-sectoral policy orientation of the NSF:

We think that the notion of a National Skills Fund should imply a fund whose mandate is driven by a national growth agenda and policy, whose mandate is above sectoral needs and is intended to plug existing gaps in resources thereby unlocking development potential that would otherwise remain undeveloped. Such a notion would see the NSF as a catalytic fund, which must respond to national skills priorities to complement resources shortages for national priorities. (p. 10)

The way in which the NSF is assuming *a new and potentially more responsive policy role* within the post-school education and training context, confirms Hofferbert's (1974) funnel model of policy innovation, where changes in economy and society directly influence public policy and opinion. The emergence of climate change, recent global economic downturns and crises and uncharacterised population growth challenges currently shaping and influencing public expectations and opinions (United Nations Environment Programme [UNEP], 2011) are examples that reflect the tenets of Hofferbert's (1974) funnel approach. These shaping influences or 'drivers' (South Africa. Department of Environment Affairs [DEA], 2010) in turn affect policy positions of political parties and interest groups, thenceforth also the preferential ideas of policy makers potentially embracing more ecological and environmentally friendly policy interventions (Lindseth, 2006; Martínez-Alier, 2002; UNEP, 2011), as can be seen by the recent proclamation of the 17 Sustainable Development Goals (www.globalgoals.org), that were accepted by 193 governments around the world, including the South African government (see Chapter 3 for further discussion on this in the South African context).

Moreover, in line with what Kingdon (1984) confirmed, new policy ideas impact upon policy development processes. A case in point is the DHET's emerging post-school education and training (PSET) system and the more-or-less five-year-cycle model of the National Skills Development Strategy (NSDS): 'policy windows' are created by socio-economic challenges such as youth unemployment and/or political events like periodic changes through national government elections (NSF, 2013a; South Africa. Department of Higher Education and Training [DHET], 2014a).

These policy demands place pressure on the policy capacity of the NSF's institutional arrangements to integrate *policy responses* in line with DHET's policy direction, which in turn is shaped by wider national policy such as the National Development Plan (South Africa, 2012a) and the South African government's commitments to global policy objectives such as the Sustainable Development Goals (UNEP, 2011). Helpful here, is Feiock's (2013) suggestion that an institutional collective action (ICA) framework for policy implementation could be used

to address dilemmas associated with more integrative policy trajectories such as those faced by the NSF. Feiock (2013) stated that *horizontal collective action challenges* emerge when the nature of government business produces externalities, resulting in co-dependency. For example, the NSF infrastructure is too small to assume the role of funder *and* implementer of skills development projects on its own. Therefore, the need arises to make use of training providers to implement training projects based upon service level agreements (discussed in more detail in Chapter 6). An example of a *vertical manifestation* is the dilemma of competing interests facing the NSF under the auspices of the DHET and the Green Fund under the auspices of the Department of Environmental Affairs (discussed in more detail in Chapters 4 and 6). Both funds and departments as actors on different levels are pursuing a similar policy objective, namely the delivery of green skills towards sustainable growth in the country (Feiock, 2013), hence the need for greater institutional collective action. An example of a *functional dilemma* is the fragmentation of the current green skills policy environment which operates across divergent sectors (and SETAs) and there is a dire need for collective institutional action responses and policy interventions (Lotz-Sisitka, Ramsarup, Gumede, Togo, & Rosenberg, 2013; Rosenberg, 2015; National Environmental Skills Planning Forum [NESPF], 2014, discussed further in Chapters 4 and 6). It is this need that has recently been funded by the Green Fund but with inadequate cross-sectoral funding. The Green Fund has only provided seed funding for more integrative, systemic engagement with green skills capacity building in the SA post-schooling system (NESPF, 2014, see Chapter 3); with the systemic interventions lacking implementation funding.

Therefore, in the light of the abovementioned policy funding dilemma, the study seeks to offer analysis of policy (the NSF's current responsiveness and/or lack thereof to green skills demands) and analysis for policy with emphasis on policy information and advice that could potentially inform the NSF's grant-making policy dilemmas that emerge in relation to green skills (out of the analysis of policy). The study therefore considers the phenomenon of *policy responsiveness* in more depth (see main research question below) using a critical realist, approach which elaborates event-based and underlying mechanisms shaping reality (elaborated in Chapters 2, 7 and 8). The project emerged from an awareness about *the lack of responsiveness* of the NSF's grant-making policy mechanism in relation to green skills needs in South Africa, a problem which is elaborated further in Chapters 3 to 6.

1.3 Main research questions and study scope

To address the problem statement above, the main research question is framed as follows: *How can an understanding of generative mechanisms inform the NSF's grant-making responsiveness in relation to green skills?* It is assumed that grant-making is a fundamental concern that requires attention within the emerging post-school education and training landscape as a specific contextual condition that can be used to strengthen policy responsiveness (South Africa. DHET, 2013a). The sub-questions are:

- a) How do the emerging dynamics around concepts like the green economy and green skills influence current / existing green skills funding response patterns? (*addressed in Chapter 3*)
- b) What are the processes, dynamics and event mechanisms responsible for enabling the NSF's current grant-making responsiveness in relation to national green skills funding? (*addressed in Chapter 4*)
- c) What are the key skills development components currently determining the NSF's responsiveness to green skills within the post-schooling policy context? (*addressed in Chapter 5*)
- d) How can a better understanding of the NSF's grant-making dynamics from an Institutional Collective Action (ICA) (integrated) perspective support responsiveness of the NSF's grant management system to emerging green skills needs? (*addressed in Chapter 6*)
- e) What are the generative mechanisms influencing existing and potential responsiveness with regard to how the NSF makes sense of national policy from a green skills perspective? (*addressed in Chapter 7*)
- f) In what way/s can the NSF potentially expand/ enhance existing responsiveness to the emergence of the green economy and associated needs for green skills development in South Africa? (*addressed in Chapter 8*)

The scope of the study covers the period of three National Skills Development Strategy (NSDS) (five-year) cycles, namely NSDS I (2001-2005), NSDS II (2005-2010) and NSDS III (2011-2016), as a multi-billion rand funding mechanism towards enabling the development of green skills in South Africa (NSF Annual Financial Statement, 2012/13). The NSDS III period was subsequently extended to 2018 to anticipatively inform the emergence of the next NSDS period namely (NSDS IV: 2016-2020) (South Africa, 2015). Henceforth, all further references relating to NSDS III will be referred to as NSDS III (2011-2016 as extended to 2018).

This study does not intend to cover the whole spectrum of the post-schooling sector in terms of confronting the problem of skills shortages; rather, it is concerned with how the NSF as a development funding agency within South Africa's skills development system can respond to national green skills needs, synchronised with the emerging green economy.

The following research literature contributed to the construction of the study:

- a) NSF organisational documentary and green skills sources, to obtain a better understanding of the nature and purpose of these, and references related to grant management as a mechanism for seeding meaningful transformations;
- b) skills development research in South Africa to understand the skills development landscape with special reference to the Department of Higher Education and Training's (DHET) post-school education and training system;
- c) philosophical and theoretical frameworks with special reference to critical realism (CR) as a philosophical platform that allows for development of an emancipatory policy position in relation to a) and b) above; and which will under-labour the use of substantive policy theory that focuses on the type of policy work that the NSF and the post-schooling system seek to develop, namely institutional collective action;
- d) literature pertaining particularly to green skills and green growth discourses. For a more detailed overview of the key documentary sources analysed in the study, see Appendix A - List of key documents analysed; and
- e) carefully selected key informant interviews to complement the analysis of key documentary sources – see Appendix B. These were primarily to obtain contemporary field-based perspectives on issues raised via the documentary sources and are used to offer these perspectives across the study.

Clarifying the responsive role the National Skills Fund, which forms of the core object of this study, the White Paper for Post-School Education and Training (DHET, 2013a) states that “the NSF must continue to be responsible for skills development aligned to national development strategies and priorities. The fund is an important source of funding to enable the linkages between the skills development system, and the other post-schooling sub-systems that will be put in place” (p. 62). This shows the key role of the NSF in the post-schooling system and therefore also its potential significance for green skills development in South Africa. The study seeks to contribute to a growing body of research in South Africa that seeks wider systemic

perspective on green skills concerns (South Africa. DEA, 2010a; Human Sciences Research Council [HSRC], 2009; Lotz-Sisitka et al. 2013; Ramsarup, 2017; Rosenberg, Ramsarup, Gumede & Lotz-Sisitka, 2016).

1.4 Conceptual structure

1.4.1 *Green skills*

What does the concept of *green skills* mean? The concept is not easy to define because of its difficulty to aggregate at a particular level due to the subjective values attached to it which become difficult to discern and detect (Organisation for Economic Development and Co-operation [OECD], 2014). The Australian Per Capita Green Skills Research Report (Construction and Property Services and Industry Skills Council [CPSISC], 2010) referred to green skills as skills toward sustainability, which is a similar view to that held by Rosenberg et al. (2016) who also suggested that green skills are skills oriented towards sustainability, but they clarified this by stating that green skills are related to environmental issues which have social, economic and equity dimensions and often deep historical roots to social justice concerns as these are related to environmental issues and to contemporary trends towards eco-innovation. They also claimed that “around the world, new forms of work are emerging across sectors in response to climate change, renewable energy, biodiversity, waste and water demands, cleaner production and radical resource productivity” (p. 99). All these forms of work require ‘green skills’, a term used for the sake of brevity (ibid., p. 99). Interestingly, and indicative of the lack of definition of green skills, is the insight that countries under research investigation in the Australian Per Capita Green Skills Research Project, like the United States of America and Germany, reserved any definitive definition of what green skills mean and imply (CPSISC, 2010).

This same trajectory of a lack of clarity surrounding the definition of green skills was reflected in interview data generated for this study. For example, respondent 13 alluded to the newness of the green skills concept as follows, “*Green skills is very broad and is a new concept in our country*”. The concept of green skills appears also highly questionable. Two respondents (4 and 9) mentioned that green skills should not necessarily be seen as a separate skills demand from the broad skills development demand and nexus in South Africa. Both respondents expressed strong sentiments challenging any dedicated category of demarcating skills as green.

From an environmental regulatory perspective, Vona, Marin, Consoli and Popp (2015) also suggested greater understanding of greening dynamics relating to the demand for certain skills, in this case green skills, is fundamental in shaping the strategic intention of education and training policies toward future prospects. However, the notion of green skill does not escape controversy. To further illustrate the contentious nature of the notion of green skills, note the following statement by Vona et al. (2015) specifically relating to the North American context:

The catchword ‘green skills’ has become common parlance in policy circles, exemplified by the Obama stimulus package committing substantial resources, as much as \$90 billion, to training programs for ‘green jobs’. Yet in spite of a raging debate on the effectiveness of these actions, there is little systematic empirical research to guide public intervention for meeting the demand for skills that will be needed to operate and develop green technology. (p. 2)

The Green Skills Project led by Rhodes University for the National Environmental Skills Planning Forum (NESPF, 2014, p. 2) referred to the concept of ‘Green Skills’ as follows:

In this project we use the terms ‘Green Skills’ as a short hand to refer to any skills needed for sustainable, climate resilient development and the management and care of South Africa’s natural resources and biodiversity. This involves a broad range of occupations across a variety of segment of the green economy – and even beyond economic activity.

In order to concretise this research project more concisely, I prefer to embrace the aforementioned conceptualisation of what the notion of green skills means and implies for the following reasons: a) the definition seemingly is a product of home ground (South African) percolation and draws from the multiple awareness patterns including colloquial or ‘short hand’ notions like ‘Blue Skills’ focussing on oceans and coasts and ‘Brown Skills’ focussing on renewable energy and waste management, which are equally important (note the words like ‘development’, ‘management’ and ‘care’ in this particular conceptualisation), and b) it expands the notion of green skills beyond an awareness of skills exclusively for economic participation, reflecting the perspective of the Department of Environmental Affairs (South Africa. DEA, 2010a) Environmental Sector Skills Plan which foregrounded a systemic approach to green skills to be inclusive of skills for the economic sector, but also skills for the public sector and the common good. Therefore, it avoids reducing and hereby limiting skills only to the trajectory of education towards economic prosperity (for example, employment) at the expense of other important dimensions of social belonging and worth which is not necessarily calculable in economic terms.

The quest to reposition South Africa on the green growth path has resulted in a process of confronting skills shortages through more sound strategic and operational responses. Such responses are required to be sustainable and well-coordinated across the country's human capacity development front. According to Lotz-Sisitka et al. (2013, p. 30), a desperate need exists to service all skills development sectors and components effectively with complete, accurate and reliable green skills intelligence, stimulating the green economy towards green jobs and satisfying environmental skills needs for the public good. Green skills financial underwriting is both a challenge and an opportunity that requires better understanding and progressive embracement, hence the need for a study such as this.

1.4.2 Grant-making

Grant-making is a core function of the NSF and emerges as a challenge or dilemma because of the fund's dependency on broader stakeholders. For example, the NSF must rely on diverse training providers to assist in achieving a common goal (see Chapter 6). The NSF's dependency on service providers places tremendous pressure on the NSF's grant-making function to procure the best possible service providers towards effective project and programme implementation (NSF, 2013a). Using the ICA model, it is possible to describe the NSF's grant-making function from a more integrative policy development perspective (see Chapter 6). Moreover, Chapter 6 explores how Feiock's ICA could assist in gaining a better comprehension of the grant-making dilemma facing the NSF in responding to the emergent green skills needs and expectations.

A study performed by the Fiscal Policy Studies Institute of Baltimore, Maryland (Friedman, 2000) suggested that it is never enough to chart a role to play as part of a broader strategy without a tactical plan that depicts the way to fulfil the required role. Friedman's (2000) point best captures the essence of grant-making: "if foundations are change agents, then there is a compelling reason to believe that a coherent theory of grant-making is necessary to produce that change. A theory of grant-making could be thought of as part and parcel of the foundation's theory of change" (p. 10). Friedman (2000) and Mackinnon and Amott (2006) stated the following main question that resides at the heart of grant-making, namely: "How do we fund towards making a meaningful difference?" There are four critical fundamentals of grant-making said to address the core grant-making question: How (to give funding)?; for what?; to whom?; and when? (Mackinnon & Amott, 2006).

What is grant-making? Broadbent (2006, p. 198) stated that grant-making is about the relationship between ‘capital’ or funding and its intended constituency, for example, the ‘community’. The quality thereof becomes evident through the actual impact at the level of intersection between ‘capital’ and the ‘community’. According to Unwin (2004), grant-making is about the claim that we exist in a funding economy context, especially under contemporary trends that foreground neoliberal economic trajectories. In this context, many organisations are increasingly realising that funding partnerships are needed to achieve organisational objectives. Unwin (2004) suggested that in such a climate, grant-makers seek providers to assist in the mutual quest of performance and delivery. Unwin (2004) added that both parties, funders and funded alike, are joined in a ‘complex dance’ where expectations are reconciled and bound to a common schedule. This situation also relates to the NSF (see a detailed discussion in Chapter 6).

1.4.3 Responsiveness

The concept of responsiveness in the context of skills development policy in South Africa usually relates to the capacity to find work or employment. This notion can be traced as far back as almost three decades ago. The emergence thereof pointed to the inflexibility of South Africa’s vocational education system to adequately address the changing expectations and demands of industry (Wedekind, 2012; Wedekind & Mutereko, 2015). However, Wedekind and Mutereko (2015) contended that the notion of responsiveness ought to be expanded beyond employability. This notion includes, for example, broader communal significances, national plans, public interests and green factors affecting the physical and organic environment. Moreover, South Africa’s transformational imperative to redress the inequalities of the past imposes greater responsibility upon education and training institutions to collaborate with industry partners. Hence, it is assumed that a better understanding of the notion of responsiveness will increase access and opportunities for the previously disadvantaged young people in the country.

This study accepts the extended conceptualisation of responsiveness put forward by Wedekind and Mutereko (2015) because it embraces critical environmental factors, raises environmental awareness and includes notions like integration and effectiveness beyond employability itself, which aligns with the framing of green skills outlined above. However, what does grant-making responsiveness mean in the context of national green skills funding?

According to Laugharn (2008), there are two conceptual notions around the issue of grant making responsiveness. He distinguished between a) *responsive (here also meaning reactive) grant-making*, and b) *proactive grant-making*. The first concept relates to the dependency of grant-makers/funding organisations largely on grantees to determine the funding agenda. A good example thereof is the NSF's 'reactive' approach where unsolicited funding proposals are entertained. The NSF's reactive approach herewith encourages the grant-maker/funding organisation to allow grantees to table their respective project proposals, not according to a prescribed NSF format, but as their own customised and innovative versions. The latter concept of *proactive grant-making* emerges on the opposing end of a possible continuum. For example, the grant-maker/funding organisation pursues a centralised driven notion of the funding agenda mainly from its own organisational platform as a funding organisation. This usually involves stipulating the core funding focus, its strategic objectives but also determining what and how outcomes should be achieved including specified methods (see further detailed discussion of these concepts in Chapter 6).

In agreement with Laugharn (2008), I prefer to use both conceptual notions and deem them both significant for national green skills funding. This is because in the final analysis it does not really matter who is determining the funding agenda between the grant-maker/funding organisation and green skills grantees because the big picture demands change, through effective national green skills funding interventions. At times, stakeholders in the field may be more attuned to the nuanced needs for funding of a new emergent area such as green skills (e.g. the proposal put forward by the National Environmental Sector Skills Planning Forum to the Development Bank of South Africa for support for skills system development) and at other times, pro-active planning for green skills on the side of the state grant-making institutions can significantly shape the green skills agenda (an example being the pro-active funding of the South African Renewable Energy Training Centre (SARETEC) by the NSF – see Chapter 3 for further detail). Hence, what is required urgently is not a power struggle over resource allocation interests but rather mechanisms such as complementary, generative partnerships and Feiock's (2013) institutional collective action framework (ICA) towards mitigating funding dilemmas (see Chapter 8 for further discussion).

1.4.4 Mechanisms

In the pursuit of the most effective mechanisms and without diminishing the actual meaning of the word 'mechanism' as they emerge from different conceptual platforms (e.g. the different

use of the word ‘mechanisms’ in Feiock’s ICA and Bhaskar’s critical realism), it becomes significant to conceptually clarify the use of the word ‘mechanism’. Significant to this study and its structuring, Feiock (2013) used the concept of mechanism differently from the way that Bhaskar (1998b) did. Feiock (2013) viewed mechanisms as action-oriented leveraging of activity and events, while Bhaskar (1998b) viewed mechanisms as generative processes and structural tendencies embodied with structural powers that have causal effects.

Bhaskar (1998a), Sayer (1992) and Collier (1994) agreed that mechanisms are associated with the ‘nature’ of the objects of the real, that is, they are relatively stable structures, which the interplay of objects often generates. The nature of reality consists of objects and stable structures, often caused by the interchanging of objects. Bhaskar (1998a) stated that the objects and structures of reality have causal powers, namely ‘generative mechanisms’ which cause events to become observable; hence insights into these will be useful for understanding the NSF and its engagement with green skills.

Both these meanings of mechanisms (i.e. as used by Feiock and by Bhaskar) should be understood within their proper context of origin and function. Hence, this research project embraces the significance of both. In Chapter 6, where a more detailed Institutional Collective Action analysis is presented, I use the concept of ‘event mechanisms’ to capture the meaning of mechanism as used by Feiock (2013). In Chapter 7 I use the concept of ‘generative mechanisms’, as used in Bhaskar’s critical realism, to probe the structural dynamics and tendencies of the event mechanisms shaping the NSF. Together, this offers an analysis of event mechanisms at the level of the actual (where events occur) and generative mechanisms influencing these events and event mechanisms at the level of the real, following Bhaskar’s (1998a) argument for a stratified ontology as foundation for social theory development.

The commitment to a more responsive approach in the recently released post-schooling White Paper (South Africa. DHET 2013a) suggests that the NSF is a key instrument of this national policy. As such, the NSF is challenged to take cognisance of more responsive, integrative policy options, including in the area of green skills funding. As such, the fund should continue reviewing its grant-making structures, processes and policy decision-making, in order to identify emerging funding possibilities such as green skills training. Through policy intervention, the NSF could unlock potential green skills growth across a range of sectors within an integrative collective action framework (South Africa. DHET, 2013a). This study

critically considers how this might be possible and makes recommendations to that effect (see Chapter 8).

1.5 Wider context of the emerging green economy: A global discussion with local implications

1.5.1 Conceptualising the green economy

It is not possible to situate the concepts used in this study appropriately without at least some critical engagement with the emergence of the green economy, globally and locally in South Africa, especially in the light of the need to uncover more complex generative mechanisms.

Globally, the growth of the green agenda is understood as a new way and an alternative path to economic growth (Death, 2014). The emergence of the green economy is relatively new to most countries (International Labour Organisation [ILO], 2010) and even the countries that are at the forefront of shaping the green economy have only responded through focused programmes since around 2007 (CPSISC, 2010; Death, 2014). South Africa is no exception as shown by the recent International Labour Organisation (ILO) study that identified a gap between green/environmental policy and green skills policy (ILO, 2010).

In terms of a working definition of a green economy, the United Nations Environment Programme (UNEP, 2011, p. 16) cited the following: “one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities.” Essentially the focus thereof is to enhance welfare and social fairness and to decrease environmental risks and ecological lacks.

As noted above, according to the Australian government’s Per Capita Report (CPSISC, 2010) and NSDS III (2013), green skills are ‘skills for sustainability’. These skills are usually technical, knowledge-based and include values and attitudes needed in the workplace to ensure sustainable outcomes for business, industry and the wider community, the acquirement of which may often be a tension-laden process. The inherent complexities are usually due to the clashing of different expectations relative to the unique requirements emanating from contextual realities, for example, industry expectations which are highly production-based might find themselves in tension with expectations emanating from educational institutions wanting to provide workplace experience as a core feature of their training programmes (NSF, 2013a) or environmental stakeholders looking for sustainability outcomes, rather than production centred or profit-motivated outcomes (Daly, 1996).

Death (2014) proposed the green economy as an important instrument towards sustainable development, but in his view, it is clear that the green economy on its own may be a limited focus for a 'global green deal', may be likened to the industrial revolution of old and may be situated in a similar paradigm. He was very suspicious of this alignment of green economy discourse with industrial revolution discourse because of the dire consequences of the industrial revolution on workers and the environment. However, he emphasised the important role that South Africa, as a representative emerging economy, has to play globally in defining the potential meaning(s) of green economy in the context of sustainable development, in the light of leading interest coming mainly from the developed countries (p. 1). It is notable that UNEP (2011) in their green economy documents were also careful to frame the concept of green economy within the wider notion of sustainable development and poverty alleviation, but as yet, there is little practical meaning given to these sentiments. Critiques of these discourses propose that too little attention is given to the 'real' meaning of sustainability in green economy discourses (see Chapter 3 for further discussion on these inherent tensions).

It is possible that what makes the 'global green deal' feasible for South Africa is that, unlike the industrial revolution and its negative effects on the environment, there is a greater demand for green skills towards green growth that could potentially result in a greater sense of environmental awareness and clean, decent work, with social justice outcomes and outcomes that can contribute to the wider common good (Raworth, 2017; Rosenberg et al. 2016). Importantly, green skills are not only for economic development, but also oriented towards the public good and Death (2014) noted further that clear focus should be given to this dual role in an integrative way. Death (2014) outlined the following four approaches of green economy discourses: a) 'green revolution,' b) 'green transformation, c) 'green growth', and d) 'green resilience'. He argued that South Africa is currently following more along the green growth trajectory and that its commitment to the green economy can be broadened within a wider social justice framework that also includes stronger public good commitments.

The ILO study (2011a) contradicted the aforementioned broad green skills role and awareness. According to the ILO (2011a) policy brief, skills development plays an important role in catalysing green economy transitions towards employment creation, indicating alignment with the narrow green growth trajectory critiqued by Death (2014). The ILO (2011a) policy brief covers 21 countries and emphasises early identification of skills needs for a low carbon economy. This policy brief highlights the following global skills development challenges in

the process of greening economies: a) skills shortages emerge as a major blockage in the process of greening economies; b) a dire need for the integration of skills development policies and environmental policies; c) anticipated green structural changes in certain sectors; d) anticipated change of occupations at varying rates and ways; e) the identification of green skills needs; and f) urgent responsiveness to green skills training needs. A report based upon a study of these 21 countries by ILO (2011a) confirmed that 60% of the world's population are showing positive tendencies of moving towards sustainable production and sustainable job creation subject to the ability to manage anticipated structural changes.

The ILO policy brief (2011a) mentioned a number of countries that have responded positively to these challenges. For example, France has a mobilisation plan for green jobs and strategic skills development; in Navarre, Spain there is a restructuring programme; and Kenya's implementation of renewable energy feed-in tariffs in 2008 has led to the embedding of sustainable natural resource utilisation in its 2010 Constitution, and to the mainstreaming of green policy awareness in its Second Medium Term Plan (2013-2017).

1.5.2 South Africa's response: A local discussion

Although South Africa's struggle with the green skills notions could be traced back as far as the 1990s, the country's developmental agenda remains central to response patterns, as one of the interview respondents (Respondent 14) indicated: *"Since the 1990s, the notions of sustainability and green skills are linked to South Africa's developmental agenda e.g. 'one nation'"*.

According to Death (2014), one group of environmental education experts in the world rates South Africa as taking a leading role in the green economy and at the same time as a 'Johnny come lately'. Death (2014) stated that in terms of the BRICS formation (Brazil, Russia, India, China and South Africa), however, the performance of South Africa does not meet the standard of the United Nations Environment Programme (UNEP) as one which is "low carbon, resource efficient, and socially inclusive" (p. 2). Death (2014) also suggested that South Africa should use the opportunities provided by the green economy to strengthen social justice outcomes, suggesting the need for an emancipatory outlook or orientation to green economy development in South Africa which must include a focus on skills development (Lotz-Sisitka et al., 2013; NESPF, 2014; Rosenberg et al., 2016).

The Department of Environmental Affairs (DEA) Green Skills Roundtable Report (South Africa. DEA, 2013, p.3) stated that, “A green economy is fundamentally different from our current practices and skills. To be able to transition to a green economy, we need to improve understanding of what this is and what is required – from this will follow commitment of resources and skills development to make this shift”. Borel-Saradin and Turok (2013) also alluded to the notion of prioritising our understanding of the requirements of the green economy agenda, of which green skills emerge as a critical area for unlocking potential for sustainable development.

Moreover, indications are that green skills research is currently emerging in South Africa as a new knowledge field (Rosenberg et al., 2016). According to the National Environmental Skills Summit Report (Rosenberg, 2015), Rhodes University leads an inter-institutional collaborative initiative under the banner of the National Environmental Skills Planning Forum to develop a new knowledge field (funded with small scale seed funding from the National Research Foundation (NRF) and extended by funding from the Green Fund) for green skills planning and systems development capacity, including the coordination function (Green Skills Project, 2015).

The ILO (2011b) cited that there is a need for dynamic initiatives which can attempt to address some of the following green skills developmental challenges: a) the identification of green skills, b) green skills deficiencies, b) effective training interventions, c) misalignment between skills and environmental policies, d) structural variations of key economic sectors, e) occupational changes and differences in occupational rates across various sectors, f) disjointedness policy frameworks, and g) lack of political will with respect to the green skills agenda.

In reply to these challenges, the following policy responses emerge, namely: a) advance policy coordination, b) stronger focus on retraining and upskilling, c) prioritisation of training for historically disadvantaged groups, d) greater demand for trainers, teachers, and researchers with green skills knowledge and experience, and lastly, e) the need to expand the skills systems to ensure the identification and forecasting of green skills needs and requirements (ibid.; see Chapter 3 for further analysis of these deliberations).

These local green skills requirements demand a thorough analysis of the various approaches to funding allocations and therefore there is a need to investigate how the NSF is responding to green skills requirements.

1.5.3 The catalytic role of the National Skills Fund

The National Skills Fund was established in 1999, in terms of section 27 of the Skills Development Act, Act 97 (South Africa, 1998a). The fund may use its money for the primary objectives as defined by the prescripts of the Skills Development Act, namely:

- a) to fund projects identified in the National Skills Development Strategy as national priorities (section 28 (1) of the Skills Development Act); and
- b) to fund projects related to the achievement of the purposes of the Skills Development Act as the Director-General determines (section 28(1) of the Skills Development Act).

The NSF is legislated to fund strategic projects as identified in the National Skills Development Strategies and projects determined by the Department of Higher Education and Training (DHET).

The OECD Report (2014) and the White Paper for Post-school Education and Training (South Africa. DHET, 2013a) charted the course of the NSF as a ‘catalytic fund’ in support of the post-school education and training skills machinery. The role of the NSF is tied uncompromisingly to the objectives of all of the key stakeholders within the post-school education and training system of which the Department of Higher Education and Training (DHET) has assumed custodianship (see Chapter 4 for more in-depth discussion on the role of NSF as a ‘catalytic fund’ in the post-school education and training context). Also, note Respondent 13’s response with regard to the importance of the NSF as a funding mechanism in the country: *“The NSF is one of the main providers of funding resources”*.

According to the White Paper for Post-school Education and Training (South Africa. DHET, 2013a), the establishment of the Department of Higher Education and Training together with the reconfiguration of the skills development landscape, introduced South Africa to the new prospect of an expanded, effective and integrated post-school system. This prospect presents itself as both a challenge and an opportunity as it ushers in an era of change and renewal. Historically, the skills development machinery was severely fragmented. Under the banner of the recently formed DHET, however, the many and various segments of the skills development machinery converge under a common goal and purpose and are now structured according to what can be described as an institutional collective action framework (Feiock, 2013). It is within this context that the NSF emerges as a national resource and key component of the skills

development machinery. Note the following contribution by Respondent 14, flagging the important need for green skills funding responsiveness in relation to funding readiness:

However, the absence of a green sense making is not the only concern. There are other problems e.g. effective funding. How do we address the lack of green skills responsiveness in terms of funding readiness?

According to the NSF Annual Financial Statement 2013/14 (NSF, 2013b) and the Skills for and through Strategic Integrated Projects (SIPs) Progress Report (South Africa. DHET, 2015a), the NSF's most notable contribution to South Africa's sustainable development agenda has been the funding of the establishment of the South African Renewable Energy Training Centre (SARETEC) project (ZAR 105 million) in the Western Cape. A few other smaller green skills contributions are evident as components of other skills developments projects. This contribution is a drop in the ocean in relation to the NSF's ZAR 2.8 billion levy income annually (with its expected increase rate of 10% annually).

Although no specific reference is made in the framework to green skills in particular, the NSF's Strategic Framework for Grant Allocation (NSF, 2013a) inferred that the strategic policy environment of the country and strategic decision-making inform decisions regarding the selection and funding of training programmes. The NDP (National Planning Commission, 2012) emphasised the importance of promoting alternatives towards energy mix ensuring at least 95% of the population have access to grid or off-grid electricity. Part of the NSF's responsibility is to become more responsive to policy concerns as flagged by the NDP (NSF, 2013a).

1.6 Positioning the study: Potential significance of research on the National Skills Fund and green skills

I am an employee of the National Skills Fund and the Department of Higher Education and Training where I serve as a grant manager. Part of my work is to undertake research.¹ The Department of Higher Education and Training (DHET) released its Research Agenda (2014-2017) for the post-school education and training (PSET) sector during 2014. This document highlights the importance of research as a key to the PSET system towards bringing to fulfilment the vision of the White Paper for Post-School Education and Training (South Africa.

¹ As an employee of the NSF, undertaking research on the NSF required that I take a reflexive approach to the study; this informed the development of the research design and approach which allowed me to generate critical distance within the organisational structure of the NSF (see also Chapter 3 where I reflect more on the research design and researchers' reflexivity).

DHET, 2013a). As such, and due to its focus on the NSF, this research project aligns itself with the DHET's research agenda and proposes to contribute to research priority through (1) access: funding modalities for public and private PSET; and (2) skills planning: analysis of demand-side signals pertaining to 'Analysis of economic policies and strategies to access future skills demand' and 'Analysis of international trends on skills demand'. A study on the NSF and green skills is needed that can contribute to the NSF's grant-making practices towards the emerging green economy in South Africa. Such a research endeavour could unlock a new body of knowledge in the area of grant-making in South African public policy.

According to Lotz-Sisitka et al. (2013, p. 26), formal green skills funding initiatives only started around 2010 and most money has gone into skills planning as opposed to implementation support. The findings of this study could favourably assist similar funding enterprises in charting their respective strategic vocations, keeping in mind that financing of green skills in South Africa is a relatively new phenomenon. This research project, accordingly, is geared towards searching for mechanisms like green skills planning and implementation. Hence, the rationale of the study is to search for a greater understanding of generative mechanisms to optimise the NSF's grant-making responsiveness in relation to green skills within the emergent post-school education and training context and the green economy.

In recent PhD research, Ramsarup (2017) showed the significance of developing in-depth understanding of diverse policy instruments used in the national skills system for an adequately integrated and coordinated approach to green skills emergence in South Africa. This study of the NSF will add to a growing body of work that provides in-depth perspective on the way in which the national system of skills development can be better oriented towards new developmental trajectories in the country, in this case sustainable, low carbon development as outlined in the National Development Plan (National Planning Commission, 2012) and other sustainable development policies that are inclusive of social justice as recommended by Death (2014).

Research findings from this study could contribute to a growing body of discourse on the role of the NSF and similar skills system instruments for green skills development, which could benefit or contribute to the DHET's implementation framework for the White Paper on Post-School Education and Training. Additionally, other similar development funding organisations or structures like the Deutsche Gesellschaft für Internationale Zusammenarbeit [German Society for International Development] (GIZ), Eastern Cape Green Skills Forum, Green Fund,

Department of Environmental Affairs and broader stakeholder involvement groups in the green economy might also benefit from the research findings.

1.7 Structure of the study

In general, the thesis does not have a separate literature review chapter as it takes a research essay approach where a question is formulated and an attempt is made to address the question with a mixture of documentary analysis and interview-based evidence and argument. The introductory chapter locates the NSF as the research object in relation to the challenge of green skills within the broader context of the South African skills development matrix and the emerging green economy discourse.

Chapter 2 describes critical realism (CR) as a meta-theoretical framework that seeks to inform the overall academic reflection and analysis process. The chapter describes how the work of Danermark, Ekstrom, Jakobsen, & Karlsson (2002) was adapted to create a four-phased research approach which I have named the Quadrilateral Policy Analysis Framework (QPAF). The QPAF is explained and explored toward a better understanding of how generative mechanisms could inform the NSF's grant-making responsiveness to green skills.

Chapter 3 focusses on the first part of the first phase of descriptive analysis Part A which maps the emergence of green economy and green skills dynamics as a potential new grant-making focus for the NSF. It tries to describe the emergence of a new demand for NSF funding that is constituted by a wider scope of demand drivers other than employability in the traditional sense, inclusive of environmental concerns, as briefly introduced in Chapter 1. Hence a scene is set for broad discussion on green skills relating to global tendencies such as the impact of climate changes on skills development expectations and local impulses in relation to national green skills requirements.

Chapter 4 focuses on the history of the NSF as a grant-making institution, event mechanisms and the fund's broad level engagement with green skills. It presents the second part of the first phase of the QPAF analytical work, namely descriptive analysis (Part B) which gives an account of the story of the NSF over three periods of national skills development strategies namely NSDS I, II and III. Also, it considers the NSF progression in terms of green skills engagements over this time.

Chapter 5 provides a deeper descriptive analysis through Phase 2 of the QPAF research design which is ‘component resolution’. This analysis shows how the NSF is currently responding to green skills. Key components such as the leadership roles of the DHET, the National Skills Authority (NSA) and the skills levy grant system are analysed as they directly affect and determine the enabling conditions of the NSF. Also, it shows how the policy dilemma of fragmentation results in inadequate responsiveness in NSF grant-making to green skills.

Chapter 6 presents Phase 3 of the QPAF research design and uses policy abductive analysis drawing on Feiock’s ICA to show how the NSF grant function works in relation to current green skills needs. The argument is made for better responsive event-based mechanisms toward resolving the policy dilemmas. It uses Feiock’s ICA framework with a special focus on current trends in grant-making and the NSF’s grant management function as a core organisational platform. As mentioned above, it uses Feiock’s concept of event mechanisms as an analytical tool and language of description.

Chapter 7 presents the fourth phase of the QPAF research design. It shows how generative mechanism analysis draws upon retroductive analysis to provide a more in-depth view of integration in relation to responsiveness at the level of the real in Bhaskar’s stratified ontology. It also sheds further light on what is shaping the dilemma currently characterising the NSF’s policy response patterns and generative causality embodied within its current approach to green skills responsiveness.

Chapter 8 brings the research project to a close by summarising the key findings from across the phases of analysis and making recommendations to inform an NSF institutional collective action response in relation to green skills. These recommendations could be considered for green skills research and by the education and training policy community, the NSF as a grant-making institution and associated partners.

1.8 Conclusion

In conclusion, Sporre (2015) mentioned that a book she once read indicated that a new-born baby can sense welcome and embrace through the touch of a hand. She reminds us of the awesome responsibility and opportunity we have toward future generations through planning and education. She posed the question: “What is in our hands?” In answer, she indicated that we have the responsibility and the opportunity to formulate a ‘common humanity’ where there are no divisions, whilst cherishing and conserving ‘human dignity’. In offering the work of this

study to the educational research and policy community, I suggest that the NSF, as a significant policy instrument, has the potential to make a meaningful difference in terms of green skills funding. This interest is contextualised within a framework of transformation where more is at stake than merely well-researched grant-making strategies, strongly articulated funding proposals and relevantly resourced skills development projects. There is also the ultimate goal: to profoundly transform our society as a whole within a frame of more benign nature-culture relations.

The next chapter turns to an explication of the QPAF and proposes this as an analytical framework to assist in orientating reflection on the NSF and green skills, keeping in mind the role of the NSF in enabling better integration and optimal effectiveness in relation to green skills.

CHAPTER 2

QUADRILATERAL POLICY ANALYSIS FRAMEWORK (QPAF):

STUDY DESIGN AND METHODOLOGY

2.1 Introduction

This chapter mainly focuses on the development of a Quadrilateral Policy Analysis Framework (QPAF) to guide the study design and analysis. This theoretical framework creates a methodological platform that assisted the researcher to address the main research question namely: *How can an understanding of generative mechanisms inform the NSF's grant-making responsiveness in relation to green skills?*

In response to the above-mentioned challenge, the chapter firstly attempts to emphasise the important nuances offered by critical realism in the social sciences, including some perceived limitations. The discourse will attempt to substantiate not only the relevance but also the suitability of critical realism to better understand the role of the NSF in enabling greater responsiveness in relation to green skills.

Secondly, the chapter seeks to provide a critical realist data analysis framework (QPAF) giving an account of the mechanisms shaping the NSF as an important policy tool in response to national green skills. The critical realist work of Danermark et al. (2002) has been framed into a four-phased research approach which I have named the Quadrilateral Policy Analysis Framework (QPAF). As indicated in Chapter 1, as part of the QPAF, special reference is made to Feiock's (2013) Institutional Collective Action Framework under the third phase, namely abductive analysis, which is used as a substantive policy theory to describe NSF grant-making within the White Paper (DHET, 2013a) for the post-schooling policy context. Lastly, it outlines the research methodology employed towards greater appropriateness of research methods and instruments within the contextual setting of the predominant critical realist sense-making awareness orientation.

2.2 Essential nuances of Critical Realism in the social sciences

Carter and New (2004, p. ii) stated that "critical realism is one of the most influential new developments in the philosophy of science and in the social sciences, providing a powerful alternative to positivism and post modernism". During the 1970s, Roy Bhaskar made the initial steps in promoting his theory of critical realism, which he initially referred to as 'critical

naturalism' for the social sciences (Bhaskar, 1979). Critical realism has become a well-known philosophical sense-making orientation offering potential for development of social scientific methodology that addresses the weaknesses of positivism and / or empiricism, and post structuralism and /or relativism, including hermeneutic methods (Archer, 2000; Vandenberghe, 2014). Bhaskar later produced his book *Dialectic: Pulse of Freedom* in which he developed his theory of human emancipation into a philosophical system known as dialectical critical realism (Bhaskar, 1993) which is based on social scientific analysis drawing on a stratified ontology and dialectical emergence of transformative praxis.

A number of proponents of Critical Realism have made substantive contributions to the development of critical realist inspired social scientific methodology and theory, such as Andrew Collier (1994), Margaret Archer's *Realist Social Theory: Morphogenetic Approach* (1995), the sociology of Frederick Vandenberghe (2014), and the ecosocialist theory of Peter Naess (Naess & Price, 2016). These theorists have tried to bring greater clarification and enhancement to social theory drawing on Critical Realism. Political economy theorist David Graeber (2001) also drew from the same philosophical source. He emphasised the concept of value as fluidity and modification in his book entitled *Toward an anthropological theory of value: The false coin of our own dreams*. In the education sphere, Karl Maton (2013) is a leading proponent of social realist theory and Maton and Moore (2010, p. 10) captured the broad school of critical realism that is emerging in the social sciences and which is addressing the limitations of positivism, empiricism, and post-structuralism as follows: "a coalition of minds rather than self-identifying or conscious group ... with differences of focus, emphasis, theoretical influence, affiliation and so on".

While this is the case, in conveying key nuances of Critical Realism in relation to social sciences, a range of concepts consistently emerge. One of the major contributions of Critical Realism is its response to positivism and its deductive nomological model, which Vandenberghe (2014) argued does not even hold in the natural sciences, let alone the social sciences. During the enlightenment period, making sense of reality was mainly perceived on the basis of experience and reason (Blackburn, 1994). The notion of positivism emanated from the 19th century French sociologist namely, August Comte. He claimed that human belief systems evolved along three trajectories e.g. theological, metaphysical and the positivistic claim mitigating itself against any sense of speculation (Mouton & Muller, 1997). Positivism mainly emerged in a process of deductive reasoning, for example, the researcher determines

research results through logical deduction while trying to explain the phenomenon under scrutiny (Mouton & Muller, 1997). This period's contribution is found in its claim that reality is verifiable and only accessible through sense-making experience and deductive and logical reasoning (Niven, 2012).

However, Bhaskar (1998a) claimed that the world exists external to, and is independent of our sense-making awareness perceptions. Also, the mere fact one is able to make sense of reality, opens up the possibility to change or modify it. It is this important nuance that embraces the emancipatory social practice dimension of critical realism. Hence this signals the 'critical' as an essential part of Bhaskar's ontology. Critical realism as a sense-making orientation regards surface appearance of reality as misleading. Unlike positivism's attempt to deduce logic on the shallow basis of a phenomenon under empirical investigation, critical realism as a philosophical orientation targets substratum ambiances and is based on a depth ontology, otherwise also referred to as a stratified ontology (Collier, 1994; Benton & Craib, 2001, p. 120; Niven, 2012) thus differentiating transitive and intransitive dimensions of reality. Our perceptions and descriptions of the world are real, but they are not the full picture of reality; reality exists outside of our perceptions and descriptions of the world. Thus Bhaskar (ibid.) differentiated epistemic relativism from ontological realism.

Another critical contribution is critical realism's response to post-structuralism and related sense-making awareness patterns associated with the French philosophers such as Derrida, Barthes, Foucault and many others. Post-structuralism emerged as a response to structuralism that peaked over two decades (1950s/1960s). Structuralism basically claimed that cultural orientations can be perceived through structural systems substratum to apparent occurrences. Unlike structuralism and critical realism, post-structuralism essentially positions itself against any notion of realism. This sense-making pattern is suspicious of anything that can be claimed autonomous of the mind and language. Hence, reality is fundamentally relativised and reduced to language and discourses. Unfortunately, when everything about reality is relativised, it introduces nothingness and lacks emancipatory capacity in response to challenges (Benton & Craib, 2001; Niven, 2012).

Critical realism is not to be equated with or reduced to structuralism. 'Structuralism' reduces reality to the importance of language as the sum total of existence. Structuralism mainly draws from the thinking of Ferdinand Saussure, who claimed that human language betrays much more than we think about the underlying structural systems of the mind (Benton & Craib, 2001;

Niven, 2012). In response to structuralist assumptions of language is Derrida and Foucault's post-structural work on Discourse Theory, which also focuses on language and concludes that language emerges as power-laden discourses, open to modification and which are extremely subjective. Moreover, language is a site of struggle where people in communities share the same and different cultural sense-making orientations manifested in discourses. Foucault's thinking combines well with the work of Lyotard, who focussed on the issue of opposing awareness patterns in language discourses. In a typical post-structuralist awareness response pattern, Lyotard claimed that consensus remains a pipe dream and that the clash of conflicting awareness patterns in language discourse is ongoing. It is at this point where post-structuralism embraces the collapsing of boundaries, indeterminacy, change, relativity, plurality, and diversity (Malpas & Wake, 2006; Hurst, 1999; Sim & Van Loon, 2004; Niven, 2012). I opine, unfortunately, the sense-making awareness orientation of post-structuralism summons reality into an abyss of non-appearances, deconstructions and contradictions.

It is at this juncture where Critical Realism attempts to make a contribution as a philosophical awareness system. For example, the work of Margaret Archer (2000, p. 7) focussed on the notion of 'self'. She was critical about the following quotes in relation to the notion of self as post-structuralism awareness patterns: 'a self does not amount to much' (Lyotard) and 'man would be erased. Like a face drawn in sand at the edge of the sea' (Foucault). Archer (2000, p. 7) opposed this depressing notion of 'self' by raising awareness of self as a 'sense' and moreover more than a mere concept and reclaimed the social reality of being human. She contended that people have a 'continuous sense of self'. The development of self is a result of a whole range of engagements not only in language and discourse but also with the physical organic i.e. material environment (Archer, 2000; Niven, 2012).

In other words, Archer's (2000) morphogenetic approach claimed society creates awareness systems which are structural and cultural on an ongoing basis. These awareness systems inherently provide limitations and openness, with possibilities for emergence, which Bhaskar (1979) also proposed in his social theory. Also, Archer (2000) claimed that awareness systems paved the way for human beings as agents. Archer's sense-making scheme emphasised the point that human beings are agents who are affected by these awareness systems created by society. Human beings find themselves constantly engaged with these awareness systems through dimensions of interchange, exchange and negotiation. Therefore the process of engagement is continuous and endless. Archer (1988) referred to this process of dynamic

engagement as the morphogenetic cycle. The result of the morphogenetic cycle could imply that these awareness systems are enhanced, entrenched or transfigured (Archer, 1988; Niven, 2012).

To illustrate how Archer's contribution as an important nuance of critical realism might support research projects like mine, I tend to agree with Niven (2012) that Archer's notion of 'analytic dualism' assists me as a human agent with causal powers not only to disaggregate research information but also to critically assess my inherent social and cultural awareness patterns. This notion elaborates my subjectivity as a researcher who is employed by the NSF (my research object). Also, the notion of Archer's 'fallacy of conflation' guided this research project, not to reduce or conflate one element, for example, social structures at the expense of another, for example, cultural dynamics of the post-apartheid post-schooling context or the agency of people and actors in the NSF system. Archer's (1988) morphogenetic approach, which is based on Bhaskar's (1979) stratified depth ontology and theoretical model of Transformative Social Action (TMSA) in which he theorises an emergent relationship between structures and agency in open systems, made me more aware of possible changes, modifications and alterations while the study process unfolded through a process of interchange, exchange, reflexivity and internal/external dialogue and informed the analysis and recommendations being made. However, Critical Realism does not present itself without controversy, which is inevitable in any philosophical scheme.

Although Critical Realism's emergence as a philosophical awareness orientation is noteworthy, its inherent limitations are also evident. For example, the following critique was offered by Kivinen and Piirinen (2004, p. 238) who contended that "... ontology is a language game played by a certain breed of philosophers, most of whom call themselves realists...", and is consequently misdirected to social science. Nash (1999) and Varela (2002) claimed that realism must be moderate because of its highly problematic social and ontological tendencies; they preferred a complexity theory for ontological explanation. Another critical voice is found in the work of Cruickshank (2004) who viewed the favourite notions of critical realism, for example, transitive and intransitive as a philosophical flaw resulting in two forms of ontologies. However, Cruickshank's critique opens the door for possibilities toward dialogic engagement with critical realism. Also, Klein (2004) confirmed Cruickshank's (2004) critique of critical realism's dualistic ontological nature in respect thereof. Cruickshank (2007) resolved this critique by working with critical realism as a meta theory and using substantive social theory

from the field *in addition to* Critical Realism's meta theoretical proposals to develop immanent critique in a field. This offers a closer reading of the critical realist project which is relationally constituted, as generated by Bhaskar (1979), to overcome the dualisms that characterise the social sciences. Cruickshank's contribution is that substantive theory from a field helps to develop the immanent critique necessary for the meta theoretical perspectives to 'make sense' and to avoid falling into the trap of dualisms. In this study, I have worked with the ICA of Feiock (2013) in this manner, to address this critique.

Hemmersley's (2009) finding in his research project offers another critique of the teleological assumptions of critical realism for supporting critical social change processes. He argued this point as follows:

It is therefore of some significance that, under the banner of critical realism, Bhaskar and others have put forward arguments that are designed to serve a similar function, while avoiding the problems associated with teleological justification. The claim is that it is possible to derive negative evaluations of actions and institutions, along with prescriptions for change, solely from the premise that these promote false ideas, or that they frustrate the meeting of needs. In this article I assess these arguments, but conclude that they fail to provide effective support for a 'critical' sociology. (p.1)

These two critiques of complexity of the ontological sphere and teleological assumptions of social change have been noted in this study. They provide useful reminders to researchers working in the critical realist tradition to avoid over-simplification of the concept of a stratified ontology and to recognise its complexities, as Bhaskar (2010) did, by using the term 'generative complexes' and to avoid simplistic assumptions of social change, which Bhaskar (1998a and 1998b) dealt with by suggesting that social change is always possible, but not always realised in open systems.

Notwithstanding the critical voices, essentially Bhaskar proposed 'theory about theory' or a 'meta-theoretical project' (Potter, 2003, p. 162; Niven, 2012) which is open for further development, a project which Bhaskar himself was involved in until his untimely death in 2015. From an emancipatory social theory point of view, Critical Realism offers an important philosophical under-labouring mechanism which I have used to create analytical distancing in the process of critically, yet constructively, reviewing the role of the NSF and green skills. Also, the transcendental notion where a phenomenon like the NSF in relation to national green skills funding is closely described and the underlying mechanisms responsible for its manifestation identified, becomes a powerful systematic method of retroductive inference which helps to 'lift out' possible pathways for transformative praxis (see Chapters 7 and 8). As

Sayer (1992, p. 107) stated: “events are explained by postulating and identifying mechanisms which are capable of producing them”. The validity of this research project is highly dependent upon the careful use of Critical Realism as a theoretical framework in the light of existing examined data, duly considered in the light of the above-mentioned critiques of Critical Realism. I therefore now turn to a detailed discussion of the research study’s theoretical orientation.

2.3 Theoretical framework: Towards a Critical Realist sense-making awareness orientation

In order to produce an immanent critique and explanation of the NSF and its current activities as a funding agency in the context of green skills emergence, I drew on Critical Realism as an under-labouring philosophy. I sought to explore its relevance and possibilities within the ambiance of a more integrative orientation to development funding with special reference to green skills for a green economy. The purpose of proposing a theoretical framework for this study is to allow for in-depth explanation and immanent critique as noted above.

The reasons why Critical Realism (CR) is considered as a guiding theory are substantiated as follows. Firstly, Critical Realism offers in-depth explanation and insight into both the transitive and intransitive dynamics of reality. Secondly, Critical Realism prioritises the ‘real’ over empirical renditions of understanding and practice only, i.e. it avoids empirical actualism (Bhaskar, 2008; Sayer, 1992). Thirdly, due to the enormous expectations placed upon the NSF as a funding mechanism within the post-school education and training context, the transformative potential to shape and influence skills development is worth exploring (see Chapters 1 and 4). Hence, Critical Realism offers the potential to search for and identify underlying generative mechanisms to better understand the nature of the NSF and the role it has to play in terms of green skills funding delivery (Sayer, 1992; Bhaskar, 2008; Bygstad & Munkvold, 2011a). Lastly, Critical Realism provides methodological process tools that move from the concrete to the abstract and then back to the concrete (Danermark et al., 2002) thus offering potential guidelines for institutional and organisational emancipation towards concrete differences in terms of planned organisational strategic targets and impact.

Sense-making experiences and observations begin to emerge through the workings of unobservable ‘transitive’ and ‘intransitive’ mechanisms that exist autonomously of our awareness fields (Bhaskar, 1998a). According to Bhaskar (2008) and Sayer (1992), in our quest to make scientific sense of reality, we discover that both nature and knowledge thereof is not

only stratified but also differentiated. Bhaskar (2008) contended that reality can exist independently of our sense-making awareness horizons and in this sense, it is ‘intransitive’. On the one hand, according to Bhaskar (2008), ‘intransitivity’ means that, despite all our efforts to understand reality, reality exists irrespective of our sense-making awareness orientations. He made the point that certain entities or objects exist independent of our awareness of them. These objects or entities become ‘intransitive’ objects of science and are at the heart of investigative attempts. According to Outhwaite (1998, p. 283), intransitivity refers to the “things that exist and can act independently of our descriptions”. On the other hand, Bhaskar (2008) stated that ‘transitivity’ depicts our changing sense-making awareness orientations of reality and studying transitivity in the form of events and empirical experience can help to explain divergent interpretations of reality at the empirical and actual levels of reality; hence he has coined this dualistic dimension ‘the central paradox of science’. Furthermore, Danermark et al. (2002, p. 23) inferred that ‘transitivity’ is ‘situatedness’ in relation to scientists and scientific investigations. Therefore science remains a place of struggle where new theories and old theories about the nature of intransitive realities contend and eventually some get replaced if found fallible and inadequate (Danermark et al., 2002; Bhaskar, 2008).

2.3.1 The Bhaskarian ontological sense-making of reality

In order to frame the research project, Bhaskar’s (2008) three domains of reality were used as a broad interpretive setting to plot the field of enquiry systematically (see Figure 2.1). Bhaskar (2008) made a distinction between three domains, i.e. the real, the actual and the empirical.

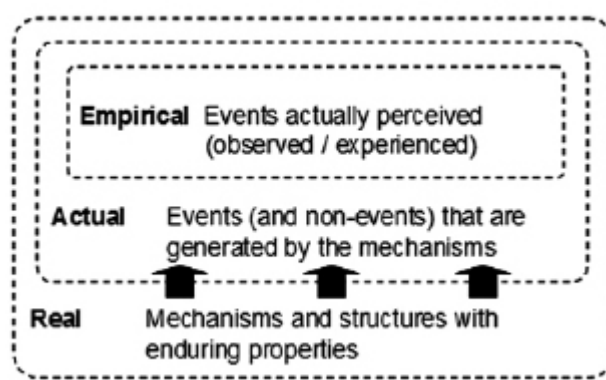


Figure 2.1: The three domains of reality as explained by Bhaskar (Mingers, 2004, p. 94)

a) The domain of the ‘real’

Danermark et al. (2002) explained that in the ‘real’ domain, powers and other generative mechanisms exist that may or may not be exercised. This domain depicts ontological structures and substratum mechanisms which embed generative potential. The objective of analysis of this domain is to retroductively infer the generative mechanisms and the causal powers of generative tendencies that offer explanation for findings from data and documentary sources represented in the empirical and actual domains. An example of an ontological structure with generative power is the embedded economic theory informing the articulation of national policy imperatives. If these theoretical assumptions are uncritically appropriated, it could misguide the formulation of funding strategies which manifests as events and experiences in the actual and empirical domains.

Archer (2015, p. 1) argued that “any social formation has a particular *relational organisation* between its parts”. She insisted that in explaining social transformations towards the common good, there is a need to give adequate attention to the nature of relational organisation. She suggested that it is possible to use the notion of generative mechanisms to explain aspects of the nature of relational associations (i.e. how they arise and work). Explanation of such generative mechanisms provides ways of understanding causality in open systems: “In the social order, generative mechanisms always exist in the plural and are thus in interplay with one another, conjointly producing what actually happens in the world” (Archer, 2015, p. 3). Bhaskar (2008) referred to these as ‘generative complexes’ which, according to him, have tendencies that can remain unexercised or can remain undetected. Such generative mechanisms may also nullify each other (Bhaskar, 2008, p. 184) or thwart one another. Importantly, Archer (2015) noted that “no generative mechanism is ever held to be other than activity dependent” (p. 4). She suggested further that such an approach to social science “... complements philosophical realism’s insistence upon the ‘context-dependence’, ‘concept-dependence’ and ‘activity dependence’ of social forms”, proposing that concepts such as ‘generative mechanisms’ must be applied with “direct *reference* to the specific social process(es) in question” (p. 4). Any adequate explanation of the social order should therefore be historicised and should take account of the generative mechanisms or interacting generative complexes associated with structure, culture and agency.

Archer (2015) suggested that this requires social theorists (and educators) who are engaged in transformative praxis processes and emancipatory scholarly work, to recognise multiple

sources of determination. This also makes deterministic accounts impossible. In this way an explanation of the NSF and its funding processes can be realist and not dependent on empiricism or universal actualism, or dualism as the interacting relationality of generative complexes in open systems is always considered in analysis. Drawing on this work on how generative mechanisms shape the levels of the actual and empirical, in Chapter 7 of this study, I offer retroductive insight into the multiple sources of determination that have shaped the NSF's engagement with green skills to date, offering an in-depth account of complex causality, which is realist, but not deterministic.

b) The 'actual' domain

According to Bhaskar (1997), in the 'actual' domain events happen, whether we experience them or not. This domain pertains to actual phenomena and events which are generated by substratum structures and generative causal mechanisms. An example of an event in the role of the NSF in green skills funding is the imminent launch of the National Skills Development Strategy IV, which will determine strategically which projects and training will need prioritisation for funding purposes. Given the significance of this upcoming event, the task in this study is to examine the role of the NSF at each specific NSDS period as key events in the research journey (see Chapter 4). Accordingly, this study focuses on the actual role of the NSF over the three National Skills Development Strategies (NSDSs) during five-year cyclic periods namely, NSDS I (2001-2005), NSDS II (2005-2010) and NSDS III (2011-2016, as extended to 2018) (South Africa, 2015). These events were identified through historical analysis to be critical to the work of the NSF and were therefore identified as being essential to examine in more detail in this study (see Chapter 4).

c) The 'empirical' domain

The 'empirical' domain displays phenomena and events experienced by NSF and green skills actors in relation to green skills funding. These experiences of the NSF are identified within concrete institutional contexts e.g. the NSDS III post-school education and training funding expectations and requirements. At the heart of the empirical domain resides the NSF funding capacity and institutional memory of experiences relating to phenomena and events as a grant-making organisation to provide grants toward skills development projects. Furthermore, this domain is indicative of the experiences of training providers responsible for training implementation and the experiences of learners as the ultimate beneficiaries (Bhaskar, 1998a; Danermark et al., 2002). It also includes experiences of green skills sector actors as they seek

to interface with the NSF and other funding organisations to develop the field of green skills research and praxis. Thus, insights into empirical experiences of the NSF's influence are found both in documents and in interviewees' perspectives of the NSF and its operations.

Bhaskar (1998a) said that these three levels are all real (see Figure 2.1). He stated too that the objects and structures of reality all have causal powers. As explained above, he saw these as 'generative mechanisms' which can cause events to become observable. These mechanisms may or may not be visible or recognisable (see Figure 2.2 below). Figure 2.2 illustrates the comprehensive layered ontology of critical realism and the narrow focal points of different research approaches. Bhaskar's (1992, p. 107) notion of 'depth' as the essence of being (ontology), which makes sense of reality as stratified and differentiated, offers insight into how generative mechanisms can inform the NSF's grant-making responsiveness in relation to green skills.

Both the generalisation and abstract research orientations emerge as extremely limited and reductionist in relation to the three ontological layers of events, mechanisms and structures. However, critical realism as an intensive form of research orientation aims to target all three levels comprehensively. Case study research is a form of intensive research and a critical realist case study, such as this one of the NSF, will include all levels as outlined in the diagram by Sayer (1992) and the 'outline' that he drew for intensive research.

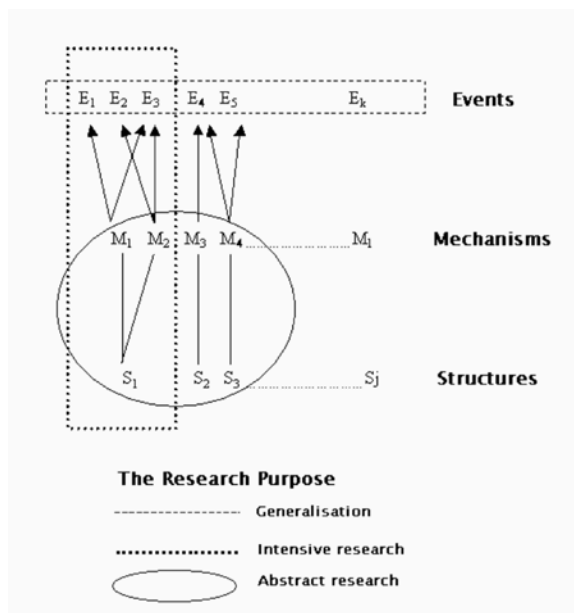


Figure 2.2: The layered ontology of critical realism and research strategies (Sayer, 1992)

2.3.2 A realist continuum: *Emergence and absence*

According to Collier (1998, p. 689), in dialectical critical realism, emergence appears on the positive side of the continuum while absence sits on the negative, hence in further reflections, it is referred to as a ‘bipolarity of absence and presence’. Danermark et al. (2002) indicated that emergence is core to a critical realist awareness orientation. It basically refers to the appearance of something new. Elder-Vass (2007, p. 317) stated that the new objects have capacities or powers that do not emanate from the parts of which it was originally composed. In this regard, water is used as an example of a substance that has the ability to extinguish fire, yet it consists of oxygen and hydrogen which are essentially highly flammable in themselves. Elder-Vass (2007, p. 321) made the point that: “the point of emergence is that it is the way a set of entities is related to each other at a given point of time that determines the joint effect they have on the world at that moment”.

Therefore Bhaskar, according to Collier (1998), did not accept a sense-making awareness that relates to ‘ontological monovalence’ in the context of old-fashioned philosophy that assumes only being at the cost of ‘non-being’. It is clear that the identification and treatment of absences become critical to a realist approach. Both Bhaskar and Collier (1998, p. 564) emphasised that “absenting absences which block needs is essential to axiological freedom”. An example thereof is the absence of a credible institutional skills intelligence mechanism that should serve the skills needs nationwide (NSDS III 2011-2016 extended to 2018; South Africa. DHET, 2013a).

Both emergence and absence became crucial to the investigation in this study, e.g. the emergence of a new national skills development strategy after a five-year period as a key policy intervention, the emergence of a restructured or re-engineered NSF as Scheduled 3A funding agency, the White Paper (South Africa. DHET, 2013a) for post-school education and training, new Sector Education and Training Authority (SETA) landscape and a new post-school education and training system (PSET) are also characterised by absence. Therefore the tasks of absenting, identification and elimination of constraints emerge as equally important in trying to get to grips with the phenomena of emergence. Moreover, providing a more structured analytical method of managing research information emerges at this point of the discussion as the most logical thing to do. Hence the process of analysing research documents was informed by an acute awareness of the continuum of absence and emergence. This continuum became extremely useful after the descriptive analysis research phase because an absence or an

emergence could better be identified following a systematic review process of the described research component (South Africa. DHET, 2013a). The following section focusses on the research methodology orientation of the study from a critical realist awareness sense-making perspective.

2.4 The Quadrilateral Policy Analysis Framework (QPAF)

Danermark et al. (2002) proposed a six-step approach to explain research based on critical realism namely, 1) description, 2) resolution, 3) redescription, 4) retrodution, 5) elimination, and 6) concretisation and contextualisation. They explained that this data analysis framework allows for analysis from concrete to abstract to concrete. They adapted this from Bhaskar's earlier DREIC framework which involved description, resolution, elimination, identification and correction. Bhaskar (2010) clarified his earlier DREIC approach and suggested that the RRREIC 'schema' was developed in basic Critical Realism for explaining phenomena in open systems. I found this useful for explaining complex phenomena such as the NSF and its relationship to green skills funding. The steps that Bhaskar (2010, p. 4) recommended are: 1) resolution; 2) redescription; 3) retrodution; 4) elimination; 5) identification; and 6) correction. I worked with these analytical processes as recommended by Bhaskar (2010), with useful insights also provided by Danermark et al. (2002), to develop an applied analytical framework for this study, which, as noted in Chapter 1, I termed the Quadrilateral Policy Analysis Framework (QPAF). This will be discussed in more detail below.

As mentioned briefly in section 2.1, I have drawn on these analytical processes and relate them to what I have termed a '**Quadrilateral Policy Analysis Framework**' (QPAF) (see Figure 2.3 below) as follows:

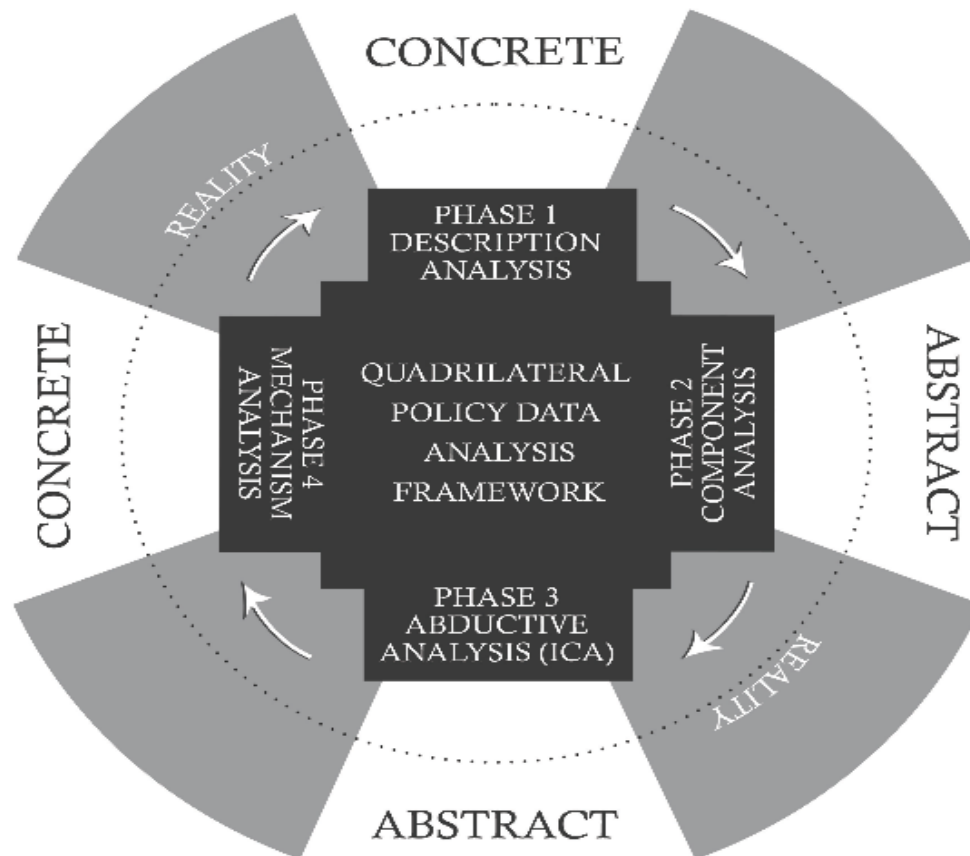


Figure 2.3: Quadrilateral Policy Data Analysis Framework (QPAF)

Bhaskar's six steps in the RRREIC model, as aligned with the QPAF framework above are:

- a) Step 1 of Bhaskar's RRREIC model involves **resolution** of the concrete situation into its components. These are **Phases 1 and 2 of the QPAF** and are concerned with compiling a detailed *description* of the green skills landscape and the NSF. Firstly, this involved providing a detailed description of the green skills landscape as it is emerging, identifying current absences, as these relate to the NSF (**Phase 1 – Descriptive Analysis Part A** - Chapter 3). Following this, it involved a description of the NSF under the five-year periods of analysis relating to the NSDSs I-III and their engagement (or not) with green skills (Bhaskar, 2010) (**Phase 1 – Descriptive Analysis Part B** - Chapter 4). This was concerned with identifying emergence as well as absences as these relate to the emerging green skills landscape and the NSF. Following this was Phase 2 of the QPAF, which involved component analysis, implying the identification of what components appeared to be

significant over the three different NSDS periods of analysis as related to the emergence and absence of integrative dimensions with the emergence as found in the green skills landscape (**Phase 2 – Component Analysis** - Chapter 5).

- b) Step 2 of Bhaskar's RRREIC model involves **redescription** of these components in an ideally or optimally explanatory significant way. Using theory for this can be helpful and, in the case of this study, I used the ICA framework for integrated policy analysis (Feiock, 2013). This allowed for abductive policy analysis, which is described in the thesis in Chapter 6 as **Phase 3 – Policy Abductive Analysis** as shown above (Bhaskar, 2010).
- c) Steps 3-5 of the Bhaskar RRREIC Schema involve: 3) **retrodiction** of the component causes to antecedently existing events or states of affairs; 4) **elimination** of alternative competing explanatory antedecents; and 5) **identification** of the causally efficacious or generative antecedents. This constitutes **Phase 4 – Mechanism Analysis** (Chapter 7) of the QPAF work in this study. Emphasis here is on generative mechanisms or the 'generative complexes' referred to above. A mechanism analysis uses retrodiction (linking empirical experience and events to potential causal mechanisms) and retroduction (thought experiments) to develop explanations of why X is the way it is. In this case this would help me to explain why the NSF has responded in particular ways to green skills (or not as the case may be) in the three NSDS periods (Bhaskar, 2010).
- d) Step 6 of the Bhaskar RRREIC Schema involves correction, concretisation and **contextualisation** which involves reviewing the above five steps in order to return to the concrete and propose new practical social theories (Bhaskar, 2010), which I will do in Chapter 8, which is the recommendations chapter of the thesis.

These steps are summarised below in Table 2.2 for clarity.

Table 2.1: Methodological steps

QPAF	Bhaskar's RRREIC Schema	Thesis chapters
Phase 1: Description Description of the emergence of green skills (Part A) Description of the NSF over three NSDS periods (Part B)	Resolution of the concrete phenomena into their components	Chapter 3 Chapter 4
Phase 2: Component analysis Component analysis and further description	Resolution of the concrete phenomena into their components	Chapter 5
Phase 3: Policy abductive analysis Using the ICA policy framework	Re-description of components in an ideally or optimally explanatory significant way	Chapter 6
Phase 4: Generative mechanism analysis	Retrodiction of the component causes to antecedently existing events or states of affairs; elimination of alternative competing explanatory antecedents; identification of the causally efficacious or generative antecedents.	Chapter 7
Recommendations	Correction	Chapter 8

Danermark et al. (2002) claimed that as long as the critical realist moves from concrete to abstract and back to concrete, the RREIC data analysis framework of Bhaskar's need not to be used as a template that is cast in stone. The different steps indicated by Bhaskar (2010) can be intertwined and customised according to research contexts as has been done above via the use of the QPAF.

For the policy abductive analysis in Phase 3 of the framework, use is made of substantive policy theory that allows for examination of integrative policy approaches as identified as needed in the post-schooling White Paper implementation context (South Africa. DHET, 2013a) and the green skills context (Lotz-Sisitka et al., 2013) as described above and as introduced in Chapter 1.

2.4.1 Phase one: Descriptive analysis

The first research phase commences in the concrete domain of the QPAF (see Figure 2.1 in this regard). It introduces the emerging green skills landscape and the NSF as the research object along a trajectory of strategic policy events. This phase attempts to respond to the first two sub-research questions namely: a) *How do the emerging dynamics around the concepts like the green economy and green skills influence existing green skills funding response patterns?* and b) *What are the processes, dynamics and event mechanisms responsible for enabling the NSF's current grant making responsiveness in relation to green skills funding?* This phase unfolds in two parts, namely A (describing the green economy focus) and B (describing the NSF focus).

Danermark et al. (2002) and Bhaskar (2010) stated that the beginning of explanatory social science is the description or resolution of an event or situation. In this case, the NSF as an organisation and also the emergence of green skills are described in terms of an analysis of empirical experiences and events. Events are happenings seen as collections of observations according to Critical Realism, as referred to by Sayer (1992). In the context of this study, examples of events are the listing of the NSF as a public schedule 3A entity, the proclamation of the Green Accord, the National Sustainable Development Framework and other related national green skills events such as the Environmental Skills Summit 2015 and the funding of the NESPF via the Green Fund (South Africa. DEA, 2015). Empirical views on these are found in the interviews and documents. See Chapters 3 (Part A) and Chapter 4 (Part B) in respect of the descriptive analysis research phase for further detail.

2.4.2 Phase two: Component analysis

After the descriptive research phase, I attempted to identify strategic components affecting the responsiveness of the NSF in relation to national green skills funding. The component analysis phase of the research project emerges in the abstract domain of the QPAF (see Figure 2.1 in this regard). This focus was pursued in response to the third sub-research question, namely: *What are the key skills development mechanisms currently determining the NSF's responsiveness to green skills within the post-schooling policy context?* The focus was

particularly on the White Paper on Post-Schooling Education and Training (South Africa. DHET, 2013a) as it is the most relevant contemporary policy influencing the NSF.

Bhaskar (1998) saw component analysis as an important part of resolution or description of a phenomenon. He included component analysis in his first step in the RRREIC Schema as explained above. Danermark et al. (2002), Volkoff, Strong and Elmes (2007) and Bygstad and Munkvold (2011b) stated that key components should be carefully identified for further and deeper analysis from initial descriptions. In this process, objects emerge as the real key components of the case study. An example from the new PSET sector is the emergence of the DHET as a new department with a commitment to integrative policy. Examples of NSF components are legislative and strategic frameworks such as the Skills Development Act, Act 97 (South Africa, 1998a) and the processes surrounding the National Skills Development Strategies I-IV. Bhaskar (2008), Sayer (1992) and Danermark et al. (2002) stated that these objects produce structures with generative powers, or with powers embedded in a theoretical framework, hence it is important to analyse for them carefully. It is for this reason that I have framed this as a 'step 2' in my policy analysis work. See Chapter 5 for further detail in this regard.

2.4.3 Phase three: Policy abductive institutional collective action (ICA) analysis

Through the third research phase I attempt to abduct the NSF's development funding function as the essence of its organisational mandate to a grant-making platform. This research phase unfolds in abstract domain of the QPAF (see Figure 2.1 in this regard). I try to offer a response to the fourth sub-research question namely: *How can a better understanding of the NSF's grant-making dynamics from an Institutional Collective Action (ICA) perspective support responsiveness of the NSF's grant management system to emerging green skills needs?* Hence, I have tried to identify the NSF's grant-making conditions, without which the NSF's grant-making mechanism cannot respond. This research phase combines both abduction (from a grant-making perspective) and retroduction (from a conceptualisation perspective) within the context of grant-making conditions as analytical tools.

The role of abduction refers to the process of analysis which makes it possible to explain events and the social processes that constitute events. Hence this research phase focuses mainly on the NSF's grant-making function as the fundamental event mechanism. According to Danermark et al. (2002), we make sense and re-describe components like grant-making in the light of conceptual frameworks. Bhaskar (2010) recommended ideally or optimally constituted

explanations, suggesting the use of theories and wider literature to provide deeper or better explanations of a phenomenon. Therefore, re-description and re-contextualisation emerge as key features of abduction towards the new sense-making views. This includes the behaviour of different mechanisms under diverse conditions (Danermark et al., 2002).

Furthermore, abduction basically attempts to describe and conceptualise the essence of mechanisms which constitute an event as a phenomenon. In Phase 3 of the analysis, I have made use of Feiock's (2013; Shrestha & Feiock, 2009) Institutional Collective Action Framework to address the NSF grant-making function *as a policy dilemma* as this appears to have some resonance with the current situation (NSF, 2013a). Feiock's (2013) framework presents itself as useful in determining the constitutive grounds for grant-making from a policy perspective.

Abduction is also beneficial for theory development purposes because it tries to offer a more effective sense-making approach for engaging with social phenomena and qualitative data (Danermark et al., 2002) as social theoretical perspectives always need to be recontextualised in order to make sense of them in practice and this helps to build new theory (Bhaskar, 1979). Hence, in this regard, the abductive mode of inference is employed to explain the NSF's grant-making mechanism towards enhancing responsiveness to national green skills funding expectations.

Furthermore, Feiock (2013), through his ICA, offers the description of mechanisms for mitigating collective institutional action dilemmas according to two dimensions, namely a) "the transaction cost of participating in the mechanism", an example of which is the need not only to focus on the funds committed by the NSF and locked into projects and contractual obligations, but also to describe the features of mechanisms responsible to cause and maintain the sustainability of contractual and project obligations between grant-maker and grantee, and b) "the capacity of a mechanism to effectively resolve the dilemma" (Feiock, 2013, p. 398; Shrestha & Feiock, 2009). An example of this is the huge sense of expectation raised by the emerging demands of the new post-school education and training system upon the NSF as funding agency (Feiock, 2013). Therefore, an ICA assessment of the NSF grant-making capacity in relation to public, political and economic expectations emerges as of paramount importance, in this case, related to green skills. Feiock (2013; Shrestha & Feiock, 2009) argued that both dimensions ought to be described broadly and specifically in relation to space, purpose, mixing, implementation and requirement. He viewed collaboration as a risk; in the

case of this study, this is influenced by the underlying ICA dilemma, namely the NSF grant-making function.

It is important then to investigate how grant-making unfolds within the NSF and what is required for grant-making to exist. An example of a basic requirement could be an effective and integrative policy framework for grant-making towards green skills. To ensure cogency in this phase, I have considered the importance of constructive soundness, which refers to the relative strength of interpretations that emerge between data and theory (Cohen, Manion & Morrison, 2000). See Chapter 6 for further detail in this regard.

2.4.4 Phase four: Mechanism analysis

Through the last research phase, that of mechanism analysis, I attempt to concretise the research focus by assessing the underlying assumptions, mechanisms and processes informing the NSF's skills planning responsiveness. This focus is in response to the fifth sub-research question, namely: *What are the generative mechanisms influencing existing and potential responsiveness with regards to how the NSF makes sense of national policy from a green skills perspective?* The NSF engages with national policy documents at different levels through a skills planning process informing its funding allocation strategy. My focus is therefore to make sense of the mechanisms substratum to the NSF's skills planning function. Hence, Bhaskar's (2010) metacritique framework as an analytical tool was utilised to assist with this task as it grounds this particular research phase well in the concrete domain of the QPAF (see Figure 2.1 in this regard). Another reason why Bhaskar's metacritique framework offers significant value as an analytical tool is its intrinsic predisposition to penetrate, expose and identify mechanisms substratum to the NSF's skills planning function (see Figure 2.2 in this regard).

Danermark et al. (2002) and DeLanda (2006) agreed that it was crucial to identify candidate mechanisms facilitating the interplay of objects and Bhaskar (2010) suggested that there was a need to identify antecedently causal mechanisms to fully explain phenomena, which he termed generative mechanisms as noted above. Danermark et al. (2002) and Bygstad and Munkvold (2011b) agreed that the validation of explanatory power is a key objective in the process of mechanism analysis. Deducing from the work of Danermark et al. (2002), the aim is to identify key mechanisms responsible for shaping the NSF as a main funding mechanism within the PSET sector and the strongest possible mechanisms determining resource strategies in terms of explanatory powers related to empirical evidence. Bhaskar (2010) suggested that these need

to be ‘weighed up’ for their strength and some explanations can be eliminated in favour of others through reasoned argumentation.

According to Bhaskar (1998a), Sayer (1992) and Collier (1994), generative mechanisms are associated with the ‘nature’ of the objects of the real, that is, they are relatively stable structures, which the interplay of objects often generates. The nature of reality consists of objects and stable structures, often caused by the interchanging of objects. Bhaskar (1998b) stated that the objects and structures of reality have causal powers, namely generative tendencies embedded in mechanisms which cause events to become observable, hence insights into these will be useful for understanding the NSF and its engagement with green skills.

Bhaskar’s (2010) model of a metacritique was used as a methodological framework to guide the quest to uncover generative mechanisms in order to identify the interplay of objects like the NSF and green skills. Bhaskar’s (2010) metacritique consisted of the following six analytical questions: a) What is inadequate? b) Why is it inadequate? c) What are the causes of the inadequacy? d) How was the inadequacy generated? e) What are the mechanisms responsible for the inadequacy? f) What are the implications?

According to Danermark et al. (2002), the goal of a mechanism study is to make sense of new mechanisms and emerging mechanisms. Danermark et al. (2002) further expounded that the explanatory ability to distinguish between ‘structural’ situations and unintended conditions emerges as critical. An example in this regard is the ability to distinguish between the structural processes of consultation in the development of a particular national skills development strategy, in this case NSDS (IV) and unintended voices excluded or marginalised in the process of consultation. To ensure validity in this phase of the research, I have considered the strength of the explanations generated through the mechanism analysis by testing them against literature and trends related to green skills funding at national level in other contexts where such accounts are available in the literature (see Chapter 7). This has helped to inform concrete recommendations for a more integrated approach to NSF engagement with green skills in South Africa in Chapter 8.

With this background to the theoretical and philosophical framework in place, I now turn to further detail of the research methodology.

2.5 Research methodology and approach: Critical Realist case study analysis approach

2.5.1 Critical Realist case study – in search of a nuanced view of reality

The implications for the chosen case study approach are indeed very important as pointed out by a number of scholars. Flyvbjerg (2011), citing George and Bennet (2005) and Walton (1992) in trying to illustrate the successful correlation and development of links between case studies and theory development endeavours, claimed that case study research has better potential to generate some of the finest theories. The management of research information, however, ought to unfold in a structured, well-organised and methodical fashion.

As indicated in Chapter 1, this research project is based upon a case study of the NSF and its engagement with green skills funding as the main research topic. According to Mouton (2001), research by case study involves units of analysis, for example organisations like the NSF. He further indicated that appraisals of literature are usually found around organisational case study analyses. Baxter and Jack (2008) indicated that the qualitative case study research approach seeks to assist the investigation of a happening within a particular setting, drawing from a variety of different sources. Yin (1994) and Stake (1995) agreed that essentially, case study research revolves around a common interest in a need for exploration and that different methods could be used to undertake such research. Mouton (2001) stated that, depending on the objective of the case study, research could be either exploratory or descriptive. Gerring (2004, cited by Flyvbjerg, 2011) stated that academic attempts to clarify the concept of case study have created more confusion than clarity due to over-elaboration and over-complication. The following simple and straightforward definition of a case study is therefore embraced according to the Merriam-Webster's dictionary (2009), namely: "Case study. An intensive analysis of an individual unit (as in a person or community) stressing developmental factors in relation to environment".

Flyvbjerg (2011, p. 313) articulated his own approach, which he has named 'phronetic social science' according to an old Greek concept 'phronesis' that means common sense or contextually situated knowledge. He (2006) argued that case studies offer a "nuanced view of reality" and are suited to the use of in-depth qualitative inquiry, but this does not preclude use of quantitative data in case study research; both can be used in complementary ways as needed to provide the nuanced view of reality that he alludes to. As I needed to develop a 'nuanced view of reality' in order to provide meaningful research of policy and for policy in the NSF

context, I have used a case study design, also because it allows for the intensive type of research referred to by Sayer (1992) which allows for a depth analysis of reality as per Figure 2.2 above.

In line with the point about developing a ‘nuanced view of reality’ offered by Flyvberg above, George and Bennet (2005) proposed certain benefits of the case study research approach that could be helpful to guide this study’s inquiry process. These advantages support the building of case studies toward better theory development practices. George and Bennet cited the following benefits: a) that case studies embrace a process of correlating causes with outcomes; b) case studies attempt to describe the research object in detail and substratum mechanisms; c) they allow for construction and analysis of historical narratives and related explanations; d) they potentially allow for greater comprehension of the significance of concepts within contextual realities; and e) they create increased possibility for the revising of research hunches and questions due to the exposure or introduction to emerging cases *in situ*.

In this study, case study research is used to explore emancipatory potential for the NSF and to search for greater understanding of generative mechanisms thereby optimising the NSF’s grant-making responsiveness in relation to green skills. In this quest, Bhaskar’s RREIC Schema (as adapted for this study as explained in Section 2.4 above) (Bhaskar, 2010) offered tools for development of an immanent critique of the NSF and green skills funding as noted above, which provides depth and nuance to the case study. Immanent critique is explained as “a method of critical analysis which uses an idea, philosophy, or system’s own premises and principles to identify contradictions and ideological biases within it, e.g. by exposing inconsistencies between those premises and principles and the historical reality underlying their development” (Oxford Living Dictionaries, 2016) (see the analytical framework outlined below).

2.5.2 General analytical approach: towards ensuring quality in the study

Drawing on Yin (1994) and Mouton (2001), data for this case study research was derived from the following key sources: a) NSF annual financial reports; b) strategic plans; c) annual performance plans; (d) NSF organisational reports, for example, NSF Business Case study (NSF, 2007); e) the Deloitte management report (NSF, 2009); f) NSF Expenditure Performance Review Report (NSF, 2014a); (g) DHET strategic documents for example the White Paper for Post School Education and Training (South Africa. DHET, 2013a); h) green skills documents for example the Environmental Skills Summit Report (South Africa. DEA, 2015); i) organisational letters, agendas, reports; and j); archival records relevant to the research period

in question, for example, across the NSDS periods (I-III). This includes service records, organisational charts, budgets etc. In the process of researching the NSF as a research object, these strategic source documents were used to produce a historiography that informed an immanent critique of the NSF and its funding activities. Appendix A contains a full list of the documents analysed.

Yin (1994) noted that one can use multiple sources of evidence through triangulation in case study research. In other words, one can attempt to enlist converging and/or diverging findings from different sources in order to ensure trustworthiness. In terms thereof, an NSF and green skills case study databank was compiled from the data sources referred to above, to ensure a properly documented evidence base and trail. The methods as explained below were appropriated to ensure credible data.

Generally, I was able to check the research data to ensure that documentary sources were officially endorsed and ownership duly identified, in order to mitigate the risk of using draft documents. The data was collected in a consistent and systematic way to ensure, as far as possible, reliability, verification and validation, both through automated and manual techniques.

The quality assurance criteria utilised in this study were a) validity, and b) reliability. These two concepts are pivotal to ensure the quality of the research project. A brief look at each is important to ensure common understanding of the concepts. Validity pertains to the essential truthfulness of the research data. I have attempted to ensure that the data collected conveys a true reflection of the NSF and the emerging green skills landscape, mainly by using primary documentary sources as outlined in Appendix A. I also used interviews with key informant interviews to obtain verification of documentary data, or alternative views, offering possibilities for triangulation of the data (see further detail on the interviews below).

Reliability refers to the claims made based upon the accuracy of data provided. What sets reliability within its unique domain is the fact that a research instrument used could be valid. In addition to the document analysis discussed above, in this study I used a semi-structured interview schedule. Authors argue that if the content thereof has not been quality assured, the reliability becomes compromised (Yin, 1994; Mouton, 2001; Trochim, 2006). A key primary data source included interviews from the following constituency groups: a) NSF –

interviewees; b) Affiliated institutions – interviewees; and c) Green skills institutions – interviewees.

When designing the interview schedule for this study, I pilot tested it first. Based on the pilot testing, I adjusted the instrument to provide greater flexibility for cases where interviewees did not have directly-related experience in matters related to the NSF or green skills. The adjustment effectively ensured better responsiveness from interviewees. This helped to make the semi-structured interview more reliable as I was able to test the effectiveness thereof.

I conducted in-depth semi-structured interviews with five key participants from the NSF/DHET leadership and five leading respondents working in the ambiance of green skills development and expansion of green skills as a new knowledge area relevant to policy implementation in South Africa. Also, to broaden the research basis, I was able to add four different perspectives from green skills institutes, namely a training provider, government provincial, government national and green skills research. All respondents were identified based upon the following criteria: a) senior level of decision-making authority relating to the NSF as an organisation, and b) strategic experience in green skills projects, green skills and or green economy awareness. Three of the NSF/DHET respondents and one from the green skills institutes category had undertaken study tours to Germany focusing on green economy dynamics and green skills. Other possible participants who did not meet these criteria were excluded, hence the number was limited to fourteen respondents with varied yet appropriate experience, knowledge and skills in national green skills funding and/or strategic involvement (see Table 2.1, and Appendix B and E for further detail on the interviews).

The interview schedule consisted of open-ended, semi-structured questions (see Appendix B). I conducted the interviews at various work sites on appointment after having made arrangements with interviewees (see Table 2.1 Interview engagement profile). The reason for using interviews as a data collection tool is that the first phase of the quadrilateral policy data analysis framework,, recommends descriptive analysis which requires not only description from documents, but the interpretation of persons directly involved in the current research situation as resource respondents.

Table 2.2: Interview engagement profile

Interview engagement profile				
Respondent	Organisation/unit	Place of interview	Date of interview	Potential value
1	NSF Chief Financial Officer	NSF Offices	01/02/2016	Grant management specialist
2	NSF Programme Director	NSF Offices	01/02/2016	NSF Project Management/NSF SARETEC Director / Germany Green economy study tour
3	NSF Programme Director	NSF Offices	01/02/2016	Grant management specialist, work integrated learning - Acting Chief Director
4	DHET: Deputy Director General Strategic projects	DHET Offices	16/02/2016	National driver for Strategic Integrated Projects/ International experience in Green economy dynamics
5	Ernest & Young: Senior manager	NSF Offices	16/02/2016	NSF senior consultant: Siyaphambili organisational engineering project
6	Ernest & Young: Executive Director	NSF Offices	16/02/2016	NSF senior consultant: Siyaphambili organisational engineering project
7	DHET: Programme Director	DHET Offices	29/02/2016	Responsible for national skills planning and research
8	National Lottery Commission: Senior Executive Manager	Queenswood	07/03/2016	Grant management specialist, former head of the NSF

9	NSF: Executive Manager	NSF Offices	08/03/2016	Grant management specialist/ Germany Green economy study tour
10	NSF SARETEC Project Manager	NSF Offices	15/03/2016	NSF SARETEC Project manager/ Germany Green Economy study tour
11	Green skills project manager	TVET Offices	05/05/2017	Green skills training provider perspective
12	Provincial green skills development manager	Eastern cape Office of the Premier	20/6/2017	Green skills provincial skills development perspective
13	National green skills senior manager	Department Higher Education and Training	21/08/2017	National green skills perspective
14	Green skills researcher	Rhodes University offices	12/09/2017	Green skills knowledge field reflective practitioner

2.5.3 Data management and analysis of primary and secondary sources

The interview process and analysis of the interview data (primary source data) followed the following process:

Step 1 – I conducted and audiotaped interviews. While interviewing respondents, I made written notes about aspects of the interaction which the audio tape was not able to pick up (e.g. facial expressions or gestures). This task assisted me with the next step.

Step 2 – I made summaries of research data to inform the construction of an analytic memo (see attached Appendix E). The making of summaries involved the construction of key pointers in relation to the research questions and excluded non-verbal dimensions.

Step 3 – I coded the data according to themes. I looked for similar words or phrases mentioned by interviewing respondents. After these phrases were identified I was able to put them into categories or themes e.g. the relation between skills planning and national policy imperatives.

Step 4 – I tried to make sense of the themes in relation to the NSF's responsiveness to green skills and in the light of related literature e.g. the NSF's responsibility to respond to green skills as per national policy documents.

I then related this to the documentary evidence where appropriate in the description sections, the component analysis, the generative mechanism analysis and the possible recommendations sections. Overall, I found that the interview data added contextual richness to the study, extending the thick descriptions and analytical insights that I was able to produce from the documentary evidence.

As noted above, significant to the research were documentary sources (secondary data sources) that were analysed including:

- a) NSF organisational literature, for example, NSF annual financial reports; NSF strategic plans; NSF annual performance plans; NSF organisational reports; organisational letters, agendas, reports; archival records relevant to the research period in question for example across the NSDS periods (I-III).
- b) DHET strategic documents, for example, the White Paper for Post School Education and Training;
- c) Green skills documents, for example, the Environmental Skills Summit Report (see Appendix A for the full list of documentary sources).

The approach to analysis that I followed with the documentary analysis was a conceptual content analysis approach. I started off by making a clear statement as to what the research entailed and I used the research questions to guide the reading of the documentary sources covering the scope thereof. I was able to use this approach to work through the content information systematically, and effectively. To do this, I kept a project file of research documents where brief notes were made in the margins whenever interesting and relevant information was found that provided insights into the research questions. I went through the notes made in the margins and listed the different types of information found, developing an initial coding system for the data that informed the development of categories. I read through the list and categorised each item in a way that offered a description of what it was about. I selected samples of the research material to be able to identify in a manageable way whether the research categories or themes could be linked in any way and listed them as major categories (or themes) and/or minor categories (or themes). I compared and contrasted the various major and minor categories. Lastly, I was able to interpret and report findings through

repeatedly reviewing all categories/sub-categories or themes through a process of detailed examination in order to ensure that the information was categorised as it should be.

In order to ensure reliability, I checked the level of agreement between themes or categories, unit analyses and sub-categories. In some instances (for example, most of the documentary sources), it was assumed that the NSF's funding strategy ought to be informed by national policy imperatives like the National Skills Development Strategy. Such categories were highlighted as straightforward and the level of agreement was high. In cases where agreement could not be established and therefore considered as low, I was able to clarify the categories and recreate the arrangement accordingly. In other cases, where differences were discussed, like the different sense-making awareness orientations around the conceptualisation of green economy and related skill dynamics, I was able to flag these accordingly by using different coloured pens, scoring them with high or low ratings (see Chapter 3, section 3.2 for further detail).

The following data management steps constitute the basis of how the primary and secondary data sources were managed in the study to produce the overall case study:

Step 1: *Development of the Quadrilateral Policy Analysis Framework (QPAF)* – this framework charts the philosophical and theoretical orientation of the research project and culminated into four distinctive research phases, as already alluded to, namely descriptive, component, abductive policy analysis and mechanisms analysis.

Step 2: *Case study data generation* – the NSF emerged as the main research object and main case study in response to green skills requirements, which required sourcing of documents and conducting of interviews as noted above.

Step 3: *Content analysis and appraisal* – documentary literature sources were systematically reviewed as a part of a process to identify strengths and weaknesses and relevance to the research focus and questions. An example thereof is how the NSF responded to green skills needs across three NSDS periods. Similarly, the interviews were systematically analysed for relevance to the research focus and questions as described above.

Step 4: *Descriptive* – this step involved translating the analysis into narrative text to address each of the research questions. The starting points were descriptive (Chapters

3, 4 and 5) using mainly inductive analytical approaches to construct the picture of the current status quo of the emerging green skills landscape and the NSF and its response to the green skills landscape. This required presenting the data according to the categories which guided the basic structure of each chapter.

Step 5: *Immanent critique* – this method was used to discuss inadequacies and flaws, and it primarily used abductive and retroductive modes of inference as these allowed me to identify the NSF’s policy dilemma and some of the generative mechanisms that are shaping the NSF and its responsiveness to the emergence of green skills in South Africa. For example, in Chapter 7, Bhaskar’s metacritique framework is used to expose the generative mechanisms shaping the NSF’s awareness orientation around skills planning, and problems that are emerging in its sense-making of national policy documents and funding responsiveness in relation to green skills.

Step 6: *Enlist converging findings* – research findings were recorded and integrated at each research phase, but in Chapter 8 of the study these are converged and synthesised to provide the ‘full picture’ of the study findings. These inform the recommendations in Chapter 8.

Further, to ensure quality assurance of the data analysis process of both primary and secondary data sources, I was able: a) to do some measure of validity testing and b) gather complementary information. This assisted the methodological procedure of integrating the interviewing process into the documentary analysis work in the study. In terms of ensuring data validity, the data emanating from the interviewing process was compared with data from documentary sources, for example the NSF organisational policy statements and observational data relating to my own occupational experience in the grant-making domain. I was able to check research conclusions reached relative to the semi-structured interviewing schedule and organisational policy positions and vice versa. This method assisted in providing reasonable assurance of mitigating the risk of making false conclusions. In cases where discrepancies emerged, I was able to investigate further by drawing upon other sources of data, for example utilising the relevant NSF-audited financial statements to mitigate associated risks involved in data validation requirements (Hammersley, 2008; Erzberger & Kelle, 2003).

Moreover, I was able to seek complementary information through cross-checking the relational dynamics between the NSF and green skills by comparing the sense-making awareness orientations from different angles, for example documented policy statements and response

patterns from interviewees. It is therefore assumed that these awareness responses attempt to capture images of the same objects, not necessarily constituting data integrity, but might complement the embodiment of a more comprehensive image of the research phenomenon in question. This approach assisted the descriptive analysis phases A and B immensely, hereby emphasising the value of combining various awareness responses as opposed simply to criticising the inherent strengths and weaknesses relative to the same perceived domain of reality (Hammersley, 2008; Sieber, 1973).

From a reflexive approach, my attachment to the NSF as an employee (see Chapter 1) necessitated that the data analysis process required a continuous process of critical reflection on the research. Further, from time to time, I had to examine my own processes and motives as a researcher, especially in relation to what the research project demanded. The self-searching included my own memory of institutional activities and processes, assumptions, prejudices, and how these might affect research decisions and conclusions (Mouton, 2001).

2.6 Conclusion

The QPAF approach as illustrated in section 2.3.4 offers a basic framework to guide the research journey. It is informed by the six-step framework of Danermark et al. (2002) which was drawn from Bhaskar's RRREIC Schema to analyse research data and plotted within Bhaskar's critical realist three-tier stratified view reality, namely the real, the actual and the empirical. In order to explore how the QPAF can meaningfully be appropriated, the philosophical line of enquiry will start with part (A) of the first research phase, namely descriptive analysis. The next chapter (Chapter 3) therefore focuses on a description of the emerging green skills landscape in South Africa, and is followed thereafter by a description of the NSF (Chapter 4) and its functioning in relation to green skills funding.

CHAPTER 3

GREEN SKILLS DEVELOPMENT FUNDING: GLOBAL AND LOCAL RESPONSES

PHASE 1: DESCRIPTIVE ANALYSIS – PART A

3.1 Introduction

This chapter focuses on the description and component analysis phases of the analytical framework discussed in Chapter 2, locating the green skills funding discussion within the South African skills development matrix, while drawing from global impulses. The chapter aims to address the first sub-question namely: *How do the emerging dynamics around concepts like the green economy and green skills influence existing green skills funding patterns?* It highlights responses pertaining to the issues of theorisation of green skills in the context of the green economy and identifying possible mechanisms that could influence the NSF's contribution to green skills (discussed in more detail in Chapter 4).

The task is approached according to the following steps: a) a description of the challenging dynamics around the notion of green economy and implications for green skills funding; b) identification of convergent response patterns relating to national green skills funding; c) identification of divergent response patterns relating to green skills funding; and d) a dialectical national green skills funding option is recommended towards a more integrated and differential funding outcome.

I believe that, based upon its complex nature, green skills funding requires a dialectical green skills funding response that is well integrated and differentially informed, strategically coordinated and quality assured in terms of green skills delivery towards green growth and the public good. This claim is further substantiated through numerous examples, both national and international.

It is complex, however, to attempt to place a price tag on something that is extremely difficult to cost exclusively in terms of economic worth. With specific reference to the complex dynamics around the phenomenon of the green economy, I draw advice from the following comment by Respondent 5 in terms of the importance of trying to comprehend the serious implications of the green economy debate for national green skills funding: *“You cannot just respond to green skills without understanding the dynamics around the challenge of green skills and the green economy”*.

The following story of Massasoit's profound awareness of land shows the risk of making sense of the green economic dynamics exclusively in terms of monetary value and capitalistic ends. Referring to the rhetoric around the green economy debate, Wilson (2013) cited the story of Massasoit, a leader of the Wampanoag Native American Nation, and his views on the selling of land during the 1620s:

What is this you call property? It cannot be the earth, for the land is our mother, nourishing all her children, beasts, birds, fish and all men. The woods, the streams, everything on it belongs to everybody and is for the use of all. How can one man say it belongs only to him? (as cited in Batt, 2003)

Wilson (2013) effectively juxtaposed Massasoit's particular sense-making awareness orientation (which is typical of many indigenous people who did not structure their societies according to the principles of private property and capital) with that of the understanding of the authors of the United Nations Environment Programme paper 'Towards a Green Economy' (UNEP, 2011), hereby emphasising the danger of defining the physical organic environment (nature) by its utility to humans and exclusively in economic terms. As rightly pointed out by Wilson (2013, p. 8) and Bär, Jacob and Werland (2011), in comparison, Massasoit's lingo is extremely different from that displayed by the writers of the UNEP paper which states that, "Ideally changes in stocks of the natural capital would be evaluated in monetary terms and incorporated into national accounts" (2011, p. 23). This foundational tension has been more widely commented on in the scientific literature (Death, 2014; Coelho, 2012; Colbran, 2011). The contentious nature of green economy dynamics is also visible in local discourse, for example, Respondent 6 noted that *"the green economy has certain challenges e.g. 1) understanding these challenges, 2) who owns these problems, and 3) how do we link these challenges to national structures?"* Hence the discussion starts with giving in-depth attention to the controversial green economy discourse in relation to its influence on national green skills funding response patterns.

3.2 Green economy: A battle over stakes, interests and orientations

3.2.1 Emergence of green economy discourse in relation to sustainable development

The story of Massasoit's response is indicative of a controversy of stakeholder claims relative to the emerging notion of the green economy. Each stakeholder respectively names and claims a stake of the physical organic environment according to common, different and/or competing arrangements of interests and sense-making awareness orientations. Martinez-Alier (2002)

captured the essence of the battle of stakeholder claims as the different valuations people place via their respective languages, disciplinary histories and life experiences.

Martinez-Alier's (2002) work in his book entitled *The Environmentalism of the Poor* compared various environmental orientations, or 'environmentalisms' as he calls them, particularly those of wilderness preservation and sustainable development with environmental justice. He suggested that ecologists are the founders of wilderness preservation discourses, whilst economists are founders of sustainable development discourse, and political ecologists and human rights activists are founders of environmental justice discourses. He proposed that there was a strong case to be made for global environmental justice. The poor are understood to be the world's majority people who have been most affected by global resource flows and extraction over long periods of time (since colonial times). This form of environmentalism which he termed 'environmentalism of the poor' affects populations who tend also to have the least power in societies and who are often adversely affected by struggles over resource mining, extractivism, enclosure of the commons and the after-effects of colonial resource flows. On the one hand, these people are trying to make ends meet with limited and depleting resources. On the other hand, big business like corporate companies are advancing mainly capitalistic agendas through building hydroelectric dams, biomass extraction and mineral exploitation, often at the expense of the peasant and indigenous communities, as has been the pattern since early slavery and colonial periods (ibid.). Hence, he suggested that there was a need to mobilise and organise social movements who advance the cause for the emergence of the environmental justice movement in the interests of more marginalised peoples of the world. In this discourse, 'green economy' would require strong attention being given to social justice and processes that address extractivism and exploitation of people and environment.

Also critical of modernist development paradigms and exploitation and extractivism, Herman Daly (1991; 1996) (formerly a World Bank economist, who turned into a leading ecological economist) claimed that the economy is a sub-section of an ecosystem which is finite, non-growing and materially closed; nothing is added or extracted or taken away. Therefore the physical organic environment is used as a source for material inputs and as a sink for wastes. He suggested that, because of modernist development patterns, the economy has become so large that human activity is threatening the very essence of ecosystem ability to sustain human life forms, a point also made by Raworth (2017). He noted that the never-ending and unsustainable consumption of resources by people, often legally, will eventually lead to

unrealistic economic growth expectations. He preferred to abandon the growth discourse (quantitative enlargement) in order to uphold a claim for a developmental approach (qualitative improvement). He claimed that the latter approach is more sustainable towards future expectations. According to Daly, if the growth orientation is obsessively embraced, it will inevitably disable societies to confront the tough issues relating, for example, to wealth redistribution and population control.

Death (2014) indicated that similar inclinations in terms of green economy thinking patterns have been supported in earlier discourses associated with sustainable development, as articulated in the Brundtland Report (World Commission on Environment and Development, 1987), a vision of sustainable development emphasising notions of stimulating growth within earth systems limitations; the Rio Declaration (UN, 1992), where economic instruments and language are used to address the imbalances between people, planet and economy, with concepts such as ‘polluter pays’ and ‘eliminating unsustainable consumption and production’ being introduced. The same propensities are evident in early South African policy documents. The Constitution of the Republic of South Africa (Act No. 108 of 1996), for example, indicates that everybody has a right to a safe environment, a statement that foregrounds a healthy environment as a human right. According to Death (2014), the preamble to the National Environmental Act (South Africa, 1998b) states that: “sustainable development requires the integration of social, economic and environmental factors in the planning, implementation and evaluation of decisions to ensure that development serves present and future generations”, indicating an inter-generational frame for sustainability thinking as was introduced by the Brundtland Report (Death, 2014).

According to Wilson (2013) and Death (2014), the phrase ‘green economy’ was introduced into national policy discourses by the UNEP (2011) paper ‘Towards a Green Economy – Pathways to Sustainable Development and Poverty Eradication’. This initiative determined the conceptual framework for the Rio+20 conference that would follow later in 2012. This also sparked other important environmental research initiatives by global role players such as the Organisation for Economic Cooperation and Development (OECD) in 2011 and the World Bank in 2012. According to Death (2014), the concept of a green economy was not really new; rather it was revived and given international prominence. The origins of the concept could be found during the 1980s in the emerging field of environmental economics pioneered particularly in the work of David Pearce (Wilson, 2013). Pearce was extremely critical of

environmental alarmism and disordered environmental policy presentation (see his work ‘Blueprint for a Green Economy’, in respect thereof) (Turner, 2005; Pearce, Markandya, & Barbier, 1989; 1990).

The claims of the green economy being a totally new phenomenon are seemingly not really groundbreaking due to their strong connectedness to the foregoing sustainability discourse. Death (2014) also inferred that these claims are not really new. Barbier and Markandya (two of David Pearce’s co-authors) recently published ‘A New Blueprint for a Green Economy’ in 2013, arguing that the threefold challenge of a) valuing the environment, b) accounting for the environment, and c) encouragement of environmental improvements remain relevant. Moreover, the negativity around the global climate crisis (Intergovernmental Panel on Climate Change [IPCC], 2014) and the financial crisis politically orchestrated the breeding ground for the concept of the green economy to receive prolific attention and rapid socio-economic prominence. Evidence of the global climate crisis is presented by the IPCC in a series of reports, the latest being the IPCC report of 2014. Evidence of increased attention being given to climate change-related concerns lies in the signing of, and contestation and critique of failure to sign, international treaties pertaining to the climate change issue, for example a) the United Nations Framework Convention on Climate Change’s ‘Kyoto Protocol’ (United Nations Framework on Climate Change [UNFCCC], 2013) – focusing on fighting global warming through the reduction of dangerous greenhouse gas emissions; b) the Copenhagen Climate Conference (2009) – recognising that climate change is one of the greatest challenges facing the world; c) Nicholas Stern’s economics of climate change case in 2007; and d) the recent COP (Conference of the Parties) held in Paris, France, from 30 November to 12 December 2015, which set the target of climate emissions reduction at 1.5 degrees (Wilson, 2013). The following quote by Stern (2007, p.10) captures the nuances associated with climate change risk:

Climate change is a result of the greatest market failure the world has ever seen. The evidence on the seriousness of the risks from inaction or delayed action is now overwhelming. The problem of climate change involves a fundamental failure of markets: those who damage others by emitting greenhouse gases generally do not pay.

3.2.2 Contestation around the concept of the green economy

According to Cock (2012), after some serious debate between developed and developing countries on what the final statement ought to be on the Rio+20 declaration document, namely on ‘The Future We Want’, the notion of a green economy was not wholeheartedly accepted as

is but rather presented as an important tool or possible way towards sustainable development. The emergence of the green economy as the ‘new kid on the block’ created new possibilities for policy options without due consideration being given to the unintended consequences thereof; for example, it could lead to issues regarding legality and rigidity. Despite the heated debates around the contested notion of a green economy, it was accepted that awareness of the green economy, especially along the trajectory of sustainable development and social responsibility in relation to such matters as poverty eradication, for example, will contribute positively to more effective, efficient management of natural resource options and improved waste management responses (United Nations Conference on Sustainable Development [UNCED], 2012).

The United Nations document *The Future We Want* (Cock, 2012) encourages countries to contemplate the implementation of green economy policies towards greater sustainable opportunities along an inclusive trajectory maximising chances of equitable economic growth and job creation, particularly for women, youth and the poor. The document is loaded with many references to employment creation opportunities that will be created if the green economy is warmly embraced.

Despite this enthusiasm, the notion of the green economy remains paradoxical. Lander (2011) has suggested that the notion of a green economy and its association with official sustainable development discourse is a ‘wolf in sheep’s clothing’:

The concept of sustainable development was extraordinarily effective both politically and ideologically. It responded in terms that seemed to take into account the criticism of the development model, while in fact reinforcing it. It functioned like a tranquilliser in that created the illusion that effective measures were being taken in response to the diagnosed crisis. By not questioning the logic of capitalist accumulation and the model of industrial society as the fundamental causes of the destruction of the conditions that make life possible, it provided new legitimacy to neoliberal globalisation which began to present itself as sustainable despite its overwhelmingly devastating dynamic. (p. 3)

Furthermore, exposing the inconsistency even more from a climate change sense-making orientation, Klein (2011) claimed that:

The expansionist, extractive mind-set, which has so long governed our relationship to nature, is what the climate crisis calls into question so fundamentally. The abundance of scientific research showing we have pushed nature beyond its limits does not just demand green products and market-based solutions; it demands a new civilizational paradigm, one grounded not in dominance over nature but in respect for natural cycles of renewal – and acutely sensitive to natural limits, including the limits of human intelligence. (p. 80)

All these conceptual contestations around the dynamics of the green economy emphasise the need for further clarification. Jacobs (2012, p. 5) explained that although he was dealing with the concept of 'green growth', other variants exist which he called 'sister concepts', like 'green economy' and 'low carbon'. For him, all these concepts speak to the same thing, namely 'growth compatible with environmental protection' and the shared common stakeholder interest. Embedded in these concepts is a strong economic claim that if environmental impacts are significantly reduced, the possibility of economic growth is increased. Jacobs (2012) contended that these green economy concepts are not neutral but possess an economic claim that is both theoretical and empirical.

The significance of conceptual clarification intensifies even further. For Wilson (2013, p. 2), it became critical to clarify the term 'sustained growth' which basically means 'economic growth, in perpetuity'. Politically, the concept has evolved to include 'sustained and inclusive growth' to cater for interest in the social justice ethos. Why is it important to clarify this concept? Jacobs (2012), Death (2014) and Wilson (2013) inferred that the notion of 'sustainable development' prepared the way for green economy debates and discussion. In respect thereof, the following quote by Wilson (2013, p. 2) requires serious consideration: "Unfettered economic growth is the destructive force that got us into this mess, and now it has become the primary instrument in our efforts to get us out of it. The problem is redefined as the solution".

This discourse on internal contradictions in the concept of green economy can be traced back to some of the appropriations of earlier discourse on 'sustainable development', which has also become a tension-laden concept as it too has been structured by ecological modernisation and growth narratives. Here it should be noted that the outcome of the Earth Summit (1992) showed that the notion of sustainable development as a trajectory of opportunities was understood, where the fulfilment of needs could be pursued but not at the expense of compromising the capacity of future generations. Some interpretations of sustainable development, however, fail to take the full implication of this trajectory into account.

The following voices entrench the extremely limited dimensions of the concept of sustainable development. According to Giddens (2009), Bond (2002), Sachs (1999) and Cock (2012), the notion of sustainable development has proven to be futile and was left exposed to too much deconstruction due to its haziness. They argued that the concept of sustainable development was merely an attempt to expand the notion of development and that the attempt to capture a

balance between social justice, economic expansion and the protection of the physical organic environment has not been fully embraced.

Most recently, Naess and Price (2016), writing from a critical realist perspective, offered a strong critique of both sustainable development and green economy concepts when they stated that:

There is a fundamental contradiction between a growth-oriented economic system and the long-term environmental sustainability... A decoupling of economic growth from resource depletion and environmental degradation is at best possible only within certain sectors or product types within relatively short time perspectives... the health of the capitalist system is dependent on the very same growth that inevitably leads to environmental degradation. There is thus a fundamental contradiction between capitalism and environmental sustainability. (p. 188)

They suggested that the “dream of green capitalism is an illusion” and go on to say that the widespread belief in this illusion is in fact necessary to keep the current capitalist system secure. They related this illusion to the structures of neoclassical economics and its assumptions, which they suggested represents a “fallacious ontology” which makes human control of the natural world an “epiphenomenon of the human world” (Naess & Price, 2016). They suggested that this is partly the result of fragmented environmental analyses which have been based on reductionist forms of science and the difficulty of establishing institutional conditions in a capitalist society that are necessary to change the quality of growth in a more environmentally friendly direction.

3.2.3 *Ways out of the conceptual dilemma?*

The aforementioned discussion shows how the dynamics around the green economy have emerged through controversy especially in relation to the issue of conceptual clarification, but the conceptual controversy is also deeply ideologically and ontologically rooted. It is this controversy that constitutes a need to find ways out of the conceptual dilemma. The inability to clarify the meaning of the concept green economy concisely (and thereby settling the battle feeding the contradictions, contestations and limitations amicably) could be reason for further debate and discussion. For example, Quintos (2011), like Naess and Price (2016), claimed that it is indeed the controversial nature of the green economy that alludes to the ambiguity around the concept of what exactly is meant by the green economy. The lack of a concise definition of the green economy could be intentional because the open-endedness creates space for the promotion of things like nuclear energy options and the trading of natural resources in the name of green economy dealings.

There is a body of literature that draws attention to what the green economy wants to achieve rather than succumbing to its conceptual dilemma. The seeming battle over interests as discussed in the aforementioned section in the context of a conceptual dilemma appears to be intractable. A superfluous response in this respect could lead to a kind of pragmatist response which fails to fully take account of the embedded contradictions and its conceptual emergence. For example, Pearce (1993), Wilson (2013) and Death (2014) assumed that the aim of the green economy is to offer alternative ways of production and consumption as opposed to what has been termed the 'brown economy', towards more sustainable development practices. Wilson (2013, p. 2) cited the UNEP (2011) work as follows in this regard: "improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities". According to Wilson (2013, p. 2), the UNEP paper *Towards a green economy* attempted to deal with the following twofold challenge, namely a) environmental degradation, and b) resilient high poverty levels. He was extremely critical of the underlying assumptions of the UNEP paper because of its approach of using market mechanisms to overcome the stated twofold challenge.

Stern (2007) indicated that in terms of climate change degradation, this phenomenon of relying on market mechanisms is to be perceived as failure on the side of the market economies. Out of this, the green economy emerged and was presented as a good alternative offering hope of being able to comprehensively account for environmental challenges. This notion is critically important because according to Clapp and Duvenhage (2005) and Dryzik (2005) (cited in Death, 2014), to accept the environment as a free resource would have detrimental consequences. Further, according to Pearce (1993), the green economy is supposed to carry the full burden of natural resources to ensure sustainability for both present and future demands.

Henceforth, I have found Wilson's (2013) article *The green economy: The dangerous path of nature commoditization* extremely helpful in exposing any attempt to put a price tag on the environment. Wilson's (2013, p. 2) critical reflection indicated that the green economy was not able to resolve emphatically the following five core challenges but could possibly cause greater risk in respect thereof, namely: a) ecosystem services are inherently difficult to price, b) the consideration of the rebound effect is insufficient, c) primacy of economics over the environment is ensured, d) markets offer little protection for the poorest people, and e) existing market mechanisms aimed at safeguarding the environment have not succeeded.

A critical view of some of these constraints of the green economy emerges upon further reflection. For example, the Millennium Ecosystem Assessment (MEA, 2005) report stated that people usually benefit from the environmental services through natural processes like purification of water, provision of food and the pollination of crops. These benefits are called ecosystem services.

Further, Wilson (2013) assumed that the UNEP's proposed green economy strategy attempts to mitigate two challenges, namely a) unpaid benefits or services received from ecosystems, and b) poverty alleviation through the payment of ecosystems services by people, be they governments, communities or companies. According to him, the cost of damaging an ecosystem does not appear in financial decision-making approaches. To address these challenges, the green economy provides for what is called 'payment for ecosystem services' (PES) (ibid.). By so doing, PES is trying to plot an ecological function as a service, thus placing a price tag on it which further implies a market demand and supply, consumers and the bureaucratic controls needed to manage this demand. Wilson (2013) was extremely sceptical about whether the pricing of ecosystem services is in fact possible, even given the best possible resources available to do so. He emphasised that the foremost ecologists and historians agree that our understanding of the natural world remains extremely limited. He was not convinced that the UNEP's claim of valuing pollination by insects at 190 billion dollars a year is accurate. Wilson (2013, p. 5) suggested that the formula used to arrive at this estimate is based upon "the bioeconomic approach as claimed by Gallai, Salles, Settele and Vaisserie (2009) ... in which the market value of a crop is multiplied by its dependence ratio on the pollinators in the nightmare scenario of '*total pollinator loss*.'" Wilson (2013) and Gallai et al. (2009) acknowledged that the ratio of pollinator decline remains little known to us.

Furthermore, Polimeni and Polimeni (2006) claimed that the consequences of the profit motive usually produce technological advancements in the appropriation of eco resources. They alluded to the 'rebound effect' where efficiency gains are determined by technology and the use of natural resources. An example in this regard is the phenomenon where it has been found that the manufacturing of fuel-efficient cars resulted in people driving more regularly and for longer distances. The echo effect of this scenario might cause the savings made as a result of this phenomenon to be used by consumers on other energy exhaustive engagements, such as travelling to other countries or even overseas. It is assumed that the logic in respect thereof betrays the supposition that if pricing mechanisms are used to reduce the environmental risk

exposure, the likelihood of ricochet increases in all sectors. In the attempt to cost ecosystem damage, a direct consequence is that the natural resources will become more expensive. Providers planning to make huge gains in market shares are driven to expand their interest through better and more efficiently advanced technological means at reduced capital cost rates. This situation will then lead to a decrease in prices while the demand for the services will increase. Therefore, if the capital costs are decreased, the rebound effect could imply that the demand could become greater to extract more natural resources than before the introduction of a pricing index. Kosoy et al. (2012, in Wilson, 2013) contended that due to these changes, the supply line is not sufficient. Another way could be to focus instead on the underlying forces of social behaviour and the impact thereof on the demand expectations. According to Wilson (2013), UNEP's *Towards a Green Economy Report* (2011) does recognise the need for the introduction of new technologies relative to the social behaviour and institutional dynamics but fails to reveal how these changes could be changed, except for slight indications of tax incentives possibilities and unproven governing policies. Clearly, it is not good enough to identify the rebound effect as a possible issue. Concrete interventions ought to be considered to mitigate the possible risks that could defeat the ultimate purpose of an eco-friendly society at large.

Wilson (2013) cited the fact that a natural service can be bought by paying a price could result in a reductionist awareness that implies that the environment can only be appropriated in terms of its worth to people. Other important values like ethical claims in defence of the environment, issues of 'inter-generational justice', social values of rural communities and the intrinsic worth of the physical organic environment are sacrificed to give way for this reductionist tendency of economics over the environment (Naess & Price, 2016; Martinez-Alier, 2002).

Notwithstanding the issue of the green economy that is emerging along a trajectory of competing claims, I have found the work of Paul Ekins helpful in this regard. Ekins (2013) cited the following factual conditions in terms of the current state of mother earth, namely a) world population is estimated to reach 9 billion by 2050; b) developing countries like China and India want to maintain developing expectations and seemingly have the capacity to do so; c) according to scientific reports, the world's natural resources are threatening total depletion through environmental degradation beyond the boundaries of safety; and d) brown growth has become unsustainable due to the climate change phenomenon and this is negatively impacting on gross domestic product (GDP).

Ekins (2013) stated that his concept of the green economy relates to the following: a) reduction of high levels of greenhouse gas emissions and of pollution; b) increased levels of resource productivity; and c) total confined human activity within earthly boundaries to resist the further escalation of the climate change phenomenon and environmental degradation. For him, green growth implies a) increased GDP while maintaining the economy within safe boundaries or converting back to the safe area; b) the successful decoupling of the GDP from the utilisation of resources and environmental impact; and c) that there is no guarantee that green growth will ensure the development of human well-being.

Ekins (2013) furthermore asserted that various policy approaches are evident on a global basis, for example, a) resource efficiency or productivity approaches; b) renewable energy approaches; and c) circular economy approaches using instruments, such as: i) market based approaches; ii) regulatory approaches for example taxation; iii) voluntary agreement; and iv) advocacy approaches, for example, consumer labelling. In terms of the different debates around GDP discourses, he conceded that GDP is basically only constricted to monetary exchanges of goods and services in the economy. He regarded the process of identifying the source of economic growth as based upon a distinction between what he called a) physical growth (measure of energy and matter consumed) – he acknowledged, in agreement with Daly, that the consuming of the earth's energy and matter is not sustainable – and b) the other form of growth is stated as economic growth (increase in funds, flows, incomes and values). According to him, theoretically there is no restriction on this kind of growth. A green economy may not automatically cause economic growth (GDP). He preferred the concept of green growth. He was critical of movements prescribing no growth or even 'de-growth' and suggested that it is unrealistic to expect world governments to try and reduce economic growth let alone encourage it. Naess and Price (2016) acceded to this point, but from a different perspective. They suggested that not even in more democratic societies where production decisions are not coupled to capitalist logic and appropriation, will a de-coupling of economic growth from growth in negative environmental impacts be possible. They proposed that in democratic societies, efforts in growth should be "in knowledge, skills, human care and solidarity, as growth in such qualities do not need to consume natural resources or reduce environmental qualities" (p. 189). Such growth, they say "is something quite different from GDP growth" (Naess & Price, 2016).

The OECD (2011) report stated that green growth offers a new way of economic development. The reason for this is that it places the welfare of humans at the core of the developmental agenda, in good standing with natural resources. Also, it attempts to account for the value of natural resources, widens the awareness of wealth to embrace social well-being and emphasises quantitative growth and development. Moreover, green growth should not be viewed as replacement for sustainable development but rather as a way towards realising it. The green growth agenda is more specific than the sustainable development agenda because it provides a policy mechanism that is concrete and measurable in the pursuit of effectively facilitating the engagement between the economy and the environment. Hence, green growth attempts to encourage cost effective and well-organised ways of more supportable production and consumption decision-making options. Developing countries can benefit through sustainable development practices like green growth especially when it has been designed to reduce poverty and manage near-term trade-offs (OECD, 2013) and if it could also strengthen knowledge, skills, human care and solidarity as proposed by Naess and Price (2016).

The South African National Skills Development Strategy (NSDS) III Implementation Progress Report 2011-2013 (South Africa. DHET, 2013b, p. 128) stated the following on the inherent growth prospects presented by green economy dynamics: “Governments that put green growth at the heart of development can achieve sustainable economic growth and social stability, safeguard the environment, and conserve resources for future generations”, which indicates that at some level there is accord with the above potentials for more environmentally benign and socially just forms of development thinking.

Based on the above discussion on the emergence of green economy discourse, it is clear that the discourse is not without problems and that there is a likelihood that the green economy means different things to different people (i.e. epistemological relativism is possible with regard to the concept and its meanings). However, from an ontological perspective, as indicated by Naess and Price (2016), the realisation thereof confronts us with deep-seated challenges which are intimately tied up with the continuation of life as we know it. There are also, as highlighted above, ways of working with the contradictions and it is these that provide opportunities – among others, the provision of national green skills funding as a response option towards sustainability and wholesome green growth prospects beyond the reductionist tendency of current neoliberal economic growth models that continue to reduce planetary well-being and increase inequalities. As argued above, something quite different from GDP growth

only can become possible. A discussion on green skills dynamics is now appropriate, with consideration of the point by Naess and Price (2016), which sees green growth to be inclusive of a strengthening of knowledge, skills, human care and solidarity.

3.3 Green skills dynamics: Implications for national green skills funding

3.3.1 Green jobs discourse as driver for green skills development

On the global front, the phenomenon of climate change and associated ecological degradation has impacted negatively upon the continuation of 20th century models of economic growth and expansion, leading to strong critiques of neoliberal economics as outlined above. This has created a search for more environmental friendly opportunities relating to green demands, and dynamics like greener technologies, funding investments and employment ventures as outlined in brief above.

One of the major discourses associated with this is the emergence of the level of attention being given to green work, which includes greening of existing work and new green occupations and green jobs. It is assumed that a huge number of employment opportunities could be created in respect thereof. Parties like the International Labour Organisation (ILO), the United Nations Environmental Programme (UNEP), the International Organisation of Employers (IOE) and the International Trade Union Confederation (ITUC) have been instrumental in confirming through numerous research assessments, the envisaged massive employment expectation. The result of this joint effort was a global research project to determine skills requirements for greener economies. In partnership, the European Centre for the Development of Vocational Training (CEDEFOP) concluded a research project called 'Skills for Green Jobs: A Global View' (2011) with a series of 21 countries studied, including South Africa, making the following findings: a) skills shortages exist that block the possibility of transitioning to greening economies in terms of proactively anticipating new occupations and in terms of modifying quite a number of existing occupations; b) the need to provide new skills for those who might lose their employment opportunity due to the fact that they work in high-emissions industrial spaces; c) customisation of their training programmes to become more responsive to the emerging landscape of changing needs and countries; and d) the introduction of innovative strategies and policies to become more proactive in the quest for transitioning to greener work spaces towards a more sustainable future and better economic conditions (ILO, 2011b).

The ILO (2011b) study focused on analysing components for example like green economy change drivers, changes in the physical environment itself and changes brought about through government regulations. The study also included the research responsibility to assess the impact of these changes on employment (ILO, 2011b; CEDEFOP, 2010).

In the light of the implications of the greening process on green skills dynamics, the ILO (2011b) study found that the global process of greening economies affects skills expectations basically in three ways, namely a) the search for more effective, efficient and eco-friendly activities results in a process of green restructuring in the pursuit of, for example, alternative energy efficient solutions like wind energy with less pollution; b) consequentially, due to the introduction of new or improved eco-friendlier technological options, a demand is inevitably created for emerging occupations; and c) because this emerging opportunity causes a demand for the servicing of contextual training responses, the shift towards greening means that more and more industries will start embracing more environmentally friendly options and alternatives in work places, and as a result existing jobs are destined to become greener as time goes on. A technician working with solar energy equipment or panels, for example, will emerge as an example of a technician in a ‘new’ occupation. Automotive employees working on the supply line with new fuel-efficient technologies have also been cited as a good example in this regard.

Furthermore, the following green skills change dynamics emerge as a result of the phenomenon of the green economy. The ILO (2011b) report cited the following drivers of change: a) actual changes in the physical organic environment, for example, changing weather patterns relating to the phenomenon of global warming; b) legislative changes through policies and regulations, for example, the aforementioned driver constitutes the very basis for policy and regulatory intervention through the policy decision making process; c) technological advancement and innovations have been directly linked to the stimulation of new markets, hence d) the demand for emerging markets – creating the demand for greener products, services, and changing client behaviours. Noticeably, these green skills drivers relate to one another in a dynamic way. In some ways, they can be considered as a ‘generative complex’ as discussed by Bhaskar (see section 2.4.4) in the previous chapter. Although the aforementioned has included the dynamics relating to the South African ILO case study (ILO, 2010), a closer look at the South African context in more detail is necessary.

The South African government has declared its commitment, herewith charting a low-carbon and sustainable development trajectory promising great employment prospects (South Africa, 2012a). The green economy discussion is rapidly emerging as a key mechanism of change towards growth (South Africa. DEA, 2010a; Maia, Giordano & Kelder, 2011). The New Growth Path (South Africa, 2010a, p. 11) made the following statement confirming the green economy as a national priority namely: “The New Growth Path targets 300 000 additional direct jobs by 2020 to green the economy”. The national New Growth Path has also identified the green economy as one of the “ten job drivers” in South Africa.

The exciting promise of green employment creation manifested in a common agreement that between 300 000 and 400 000 new green jobs could become a reality (Maia et al., 2011). South Africa’s green commitment is embodied in the following key policy documents: the South African Green Growth Accord (2010), the National Development Plan (2012) and the National Framework for Sustainable Development (2008). In making sense of these important documents, it is fair to assume that green growth indicates an emerging approach to economic growth.

According to the National Climate Change Response White Paper (2011), the following alarming notion is stated: the “potential impacts on South Africa in the medium to long-term are significant and potentially catastrophic”, for “after 2050 warming is projected to reach around 3 – 4 degrees C along the coast and 6 – 7 degrees C in the interior. With these kinds of temperature increases, life as we know it, will change completely” (South Africa, 2011, p. 9). Furthermore, the White Paper (2013) for post-school education and training refers to the potential of ‘green jobs’ (DHET, 2013a, p. 15) and the ‘new, green economy’ (ibid., p. 32) but fails to pin down the exact meanings of these. It does not, however, really deal with implications of climate change on issues of social justice.

Importantly, Trollop and Tyler (2011, p.11) lamented the reductionist tendency of making sense of the green economy as something that has been exclusively reserved for a dedicated section by stating “... the compartmentalisation of the ‘Green Economy’ as something separate and therefore different or additional to a mainstream future South African economy”.

However, a new horizon has emerged, signifying a newly-found awareness in terms of using the country’s natural resources more responsibly, turning the tide on ecosystem degradation: there is a spirit of optimism about economic opportunities like green employment prospects.

In building further on this important notion of newly-found awareness, the leadership role of the Department of Higher Education and Training signals positive signs of embracing the emergence of green economy opportunities. The Department of Higher Education and Training is leading the skills development aspects associated with implementation of the presidential initiative, i.e. the 18 Strategic Infrastructure Projects (SIPs), budgeted for at ZAR 827 billion, to ensure the roll-out of these. The Strategic Integrated Programme (SIP) 8 mentions that it is “designed to support green energy initiatives on a national scale through a diverse range of clean energy options”. It is expected that the Strategic Integrated Programme “will improve access by South Africans to healthcare facilities, schools, water, sanitation, housing and electrification” while “investment in the construction of ports, roads, railway systems, electricity plants, hospitals, schools and dams will contribute to faster economic growth”.

In trying to capture the essence of what green jobs actually mean, the ILO Policy Brief (2008, p. 2) claimed that the notion of ‘green jobs’ may be defined as follows:

... jobs that reduce the environmental impact of enterprises and economic sectors, ultimately to levels that are sustainable. This definition covers work in agriculture, industry, services and administration that contributes to preserving or restoring the quality of the environment.

Hattingh (2014) highlighted the proactive reflection by the Industrial Development Corporation (IDC), the Development Bank of Southern Africa (DBSA) and the Trade Industrial Policy Strategies (TPS) during 2011, which all have projected direct employment opportunities as follows: a) 98 000 jobs – short term (2011-2012), 255 000 jobs – in the medium term (2013-2017) and 462 000 jobs – over the long term (2018-2026). These projections offer greatly needed stimulation for green growth domains. Further, more than 50 % (232 926) of these employment opportunities are envisaged in the natural resource management domain: the energy sector could see 130 023 jobs, energy and resource efficiency 67 977 jobs, and emission and pollution mitigation 31 642 jobs. The Environmental Sector Skills Plan for South Africa (DEA, 2010) also included jobs that are oriented especially towards public sector environmental management, with an emphasis on the need to address vacancies in the environmental sector and to better align spending on expanded public works programmes with viable learning pathways out of poverty. The South African National Biodiversity Institute’s (SANBI) Biodiversity Human Capital Development Strategy (2010) also emphasises public sector environmental management skills, emphasising high level scientific and management skills.

According to Borel-Saradin and Turok (2012), the ILO (2011b), UNEP (2013) and the DBSA (2011), the South African government has reached a common agreement that three to four thousand green or sustainable jobs will be created. Montmasson-Clair (2012), National Framework for Sustainable Development (South Africa. DEA, 2008), New Growth Path (South Africa. Department of Economic Development [EDD], 2011a) and the Green Accord (South Africa. EDD, 2011b) all mention that the South African government has publicised its goals to initiate a sustainable path of low carbon expectations, promising the realisation of quite a number of jobs (as aforementioned) in the green economy. Death (2014), OECD (2011) and CEDEFOP (2011) indicated that green growth is a new form of economic development that does not necessarily substitute the notion of sustainable development, as discussed above.

The following international case study solidifies the expectations fuelled by the greening of economies worldwide. The ILO study (2010) refers to the Brazilian retraining project in the sugarcane industry as an example of how countries might benefit in terms of new job opportunities as the economies embrace green growth. In 2014, the Brazilian Sugarcane Industry Association (UNICA) entered into a high-level protocol agreement with the environment department of the state of Sao Paulo. This agreement signalled the cessation of the practice of burning of sugarcane, which had resulted in serious respiratory diseases amongst people living the nearby affected sites. Ramifications of this intervention implied that a large number of the sugarcane cutters would have to be redeployed to other sectors. The situation demanded the investigation of other initiatives to retain workers and to provide better job opportunities within familiar work spaces in different segments of the economy.

Such possible green jobs also have potential positive spin-offs for poverty alleviation. The projected green jobs could assist, for example, in the preservation of the environment and help to create a sustainable low-carbon economy, contribute to the protection of ecosystems and biodiversity, reduce energy and water consumption, decarbonise the economy and reduce waste and pollution levels effectively (UNEP, 2009; Hattingh, 2014).

Despite all the commendable efforts by South African policy makers and sporadic economic performances, South Africa remains a country with unacceptably high levels of economic hindrance. According the United Nations Environment Programme (UNEP, 2011, p.16), a country's green economy ought to be minimally dependent upon carbon, well-organised in terms of resources, and socially inclusive; yet South Africa is still heavily reliant on coal to keep the economy going and haunted by some of the highest socio-economic inequality levels

in the world (Resnick, Tarp, & Thurlow, 2012). South Africa's National Development Plan acknowledged the fact that since the late 19th century, the country has exploited its mineral wealth with a serious lack of regard for the environment (South Africa, 2012a). Moreover, the World Bank has reported that in 2010, South Africa emitted 9.2 tons of CO₂ emissions (tCO₂e) per capita, compared to 1.7 tCO₂e in India and 2.2 tCO₂e in Brazil (World Bank, 2013).

These dire economic circumstances propel the country to consider new opportunities that lead to increased mechanisation and technological innovation. Unfortunately, the quest in respect thereof implies job losses due to the intended consequences of competitive automation (NSF, 2013c).

The global economic slow-down tendencies have created an opportunity for the country to review its policy options with the strategic intent of identifying bottlenecks and unblocking them accordingly through more effective policy intervention (NSF, 2013a; NSF, 2015a).

3.3.2 The green skills trajectory in South Africa

The green skills trajectory in South Africa is closely related to the above shifts related to green jobs planning, but there is as yet very little alignment between the discourse on green jobs, and the discourse on green skills development. The absence of a central skills planning mechanism has created a bottleneck scenario with dire implications for responsiveness across environmental sectors. NESPF (2014) claimed that although generic green skills needs exist across South Africa's green economy front, no mechanism is evident that could proactively catalyse the national skills system to ensure the progressive advancement of the green skills agenda. They attempted to substantiate this claim by illustrating a) the lack of green skills produces a bottleneck hampering the country's economic prospects; b) ramifications of the lack of systemic organisation for the green economy; and c) deducing from various national green skills documents, it becomes clear that an obligation has been raised on a range of sectors to respond by reducing skills gaps across sectors (like fisheries) and energy and sub-sectors (like urban planning).

Lamenting the lack of alignment planning and policy, the ILO study (2010) deplored the lack of alignment between green skills planning and green policy development in South Africa. The fragmented responses will inevitably fail to deliver the expected results due to a lack of systems capacity. The study looked at the existing and forthcoming skills needs for South Africa's greening economy. The outcomes thereof flag serious warnings around current and future

fissures that could possibly be responsible for green growth blockages. Green skills shortages exist across all sectors and are driven by market demands. The following weaknesses were pointed to by the study, namely a) lack of proper coordination by national policy; b) insufficient training and development programmes; and c) inadequate funding allocations.

Hattingh (2014) embraced the recommendation of a national skills audit in training initiative interventions in 2011, covering wind energy initiatives and training programmes in the biodiversity sectors and where sector specific skills were greatly needed.

Overall, South Africa's plans for greater sustainability and green growth expansion suggest a dire need for green skills. However, a lack of a comprehensive funding response to ensure that skills resources are effectively mobilised toward effective national green skills funding practices is evident (NESPF, 2014). Hence the need for an integrated and differential green skills funding response approach.

Although South Africa has well researched strategic documents like the NSDS III and the NDP, the following weaknesses signal the dire need for skills systems capacity: a) inadequate green skills planning; b) lack of skills demand forecasting; c) absence of a comprehensive plan to encapsulate demand and supply signals across the PSET system; d) lack of integration interfacing with existing national systems like the SAQA's national career guidance portal; e) a number of related studies substantiate that green skills planning has occurred on an ad hoc basis without proper coordination and without a national strategic focus; f) the lack of proper coordination causes the process of mobilising funding resources to be ineffective because the allocation of funds is not well informed by a well-researched skills planning process, under-utilisation of funds and lack of information sharing in terms of best practices; and g) the country's capacity to gather green skills intelligence risks being compromised, hampering the prospects of green employment creation due to the lack of systemic and integrated organisation in respect thereof (South Africa. DEA, 2011a; ILO, 2011b; HSRC, 2009; NESPF, 2014).

South Africa's transition to greener pastures appears not to be without inherent challenges. According to Death (2014), the emerging South African green economy is currently facing serious challenges in pursuit of transitioning to the green economy. He warned that this quest should not create new problems that will entrench greater injustice and inequality. Moreover, the fact that South Africa has been cited as a green economy global leader creates tremendous pressure and welcomes global expectations in respect thereof. At the heart of this expectation

emerge economic opportunities. Therefore, the building of capacity emerges as a key requirement to expand and enhance the skills development pipeline on a social justice basis and in a sustained fashion.

It is within this context that the NSF was expected to perform, yet the fund remains somehow dependent upon national priorities that were identified on a sectoral basis (see Chapter 4). This notion unfolded through the NSF relying upon sectoral skills priority impulses aggregated as national priorities, mainly through the Sector Skills Plans emanating from Sector Education and Training Authorities (SETAs) (NSF, 2013a). Once again, the divergent tendency in this challenging ambiance is clearly noticeable. The following timeline (Figure 3.1) provides interesting information for analysis purposes.

1987 Brundtland Commission Report: 'Our Common Future'

1998 National Environmental Management Act
 2003 Renewable Energy Strategy
 2005 National Energy Efficiency Strategy
 2008 Launch of the National Energy Act (2008-2009)
 2008 National Framework for Sustainable Development
 2010 National Green Economy Summit
 2010 New Growth Path (GDP)
 2010 Industrial Policy Action Plan (IPAP)
 2010 Biodiversity Human Capital Development Strategy
 2010 Country's first Environmental Sector Skills Plan



2011 ILO study - Skills for Green Jobs and UNEP. Towards a green economy

2011 Launch of NSDS III (2011-2016 and extended to 2018)
 2011 National Development Plan
 2011 National Climate Change Response White Paper
 2011 Green Economy Accord
 2011 Integrated Resource Plan for Energy
 2011 The White Paper on National Climate Change Response
 2011 National Strategy for Sustainable Development and Action Plan
 2012 National Development Plan 2030
 2012 Government Infrastructure Plan
 2012 Long term Adaptation of Green Economy
 2012 National Infrastructure Plan



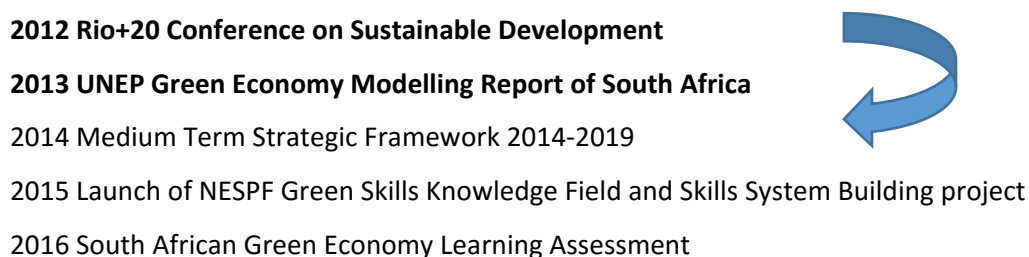


Figure 3.1 Timeline for the green economy and green skills awareness

Based on the above diagram (Figure 3.1), it is clear that South Africa is basically following the global trajectory, catching up on what the ILO (2011b) report suggested are the promising prospects of what green skills may offer in relation to the advancement of green growth and economic opportunities. Moreover, the following insights are emerging: a) besides the fact that global tendencies are shaping South Africa's local environmental affairs, green awareness was mainly triggered by the demands coming from the energy sector (period 1998-2008); with regards to this period, however, Respondent 14 commented: *"Since the 1990s, the notions of sustainability and green skills were linked to South Africa's developmental agenda e.g. one nation ..."*; b) the notion of sustainable development gave way to a more focused green economy awareness; and c) initially, green economy policy formulation was sectoral (divergently) driven (period 1998-2008) but henceforth policy formulation was gradually being determined by national interest and needs (period 2008-2012) as reflected in the emergence of a National Development Plan in 2012 (South Africa, 2012a). In the last six years (2010-2016) there has been an amplification of system-based initiatives to address green skills planning from a more pro-active vantage point. In support of the latter two periods, Respondent 14 commented from a green skills research perspective: *"The last five years has seen the emergence of national strategies such as the Biodiversity Human Capital Development Strategy which focusses on biodiversity scarce skills and needs for transformation in the country"*.

3.4 Green skills funding patterns

Upon closer scrutiny, the following green skills funding patterns emerged from the above discussion, which I will attempt to clarify further. Keeping in mind that countries like the United Kingdom and United States were already included in the 21 country ILO (2011b) *Skills for Green Jobs: Global View* report on a large scale, there was a need to zoom in on the 'Per Capita Green Skills Research Project Report' (CPSISC, 2010). This report was produced by an

Australian think-tank with a specific mandate to research and explore the emerging and futuristic challenges in empowering the current labour force with relevant and the required skills to build a sustainable economy. The aim of the report was to inform the work of the Australian Industry Councils (ISCs) to benchmark best practices globally towards better strategy formulation, capacity building and ultimately to lead to sustainable economic development. The task was to trace and identify the funding mechanisms functioning within the context of three alternative models or approaches of green skills delivery (CPSISC, 2010). The study investigated green skills delivery approaches in countries such as the United States of America, the United Kingdom, Denmark and Germany. I made use of these international perspectives to shed light on the South African green skills funding patterns.

Based on a critical reading of this report, I categorised the funding tendencies as green skills funding patterns, namely: a) a convergent funding response pattern; b) a divergent funding response pattern; and c) a dialectical funding response approach, making a case for a comprehensive green skills funding response. These concepts and categories offer strong descriptive and explanatory potential in the effort to capture the NSF's green skills funding response patterns across the three NSDS periods.

The funding of green skills delivery practices does not occur in a vacuum. As proven by a number of studies like the ILO (2011b) Skills for Green Jobs, Green Jobs Report ILO (2011b) and the Per Capita Green Skills Research Project Report (CPSISC, 2010), the green skills funding component is determined, fashioned and integrated into the very fabric of the relevant green skills ethos of host countries.

3.4.1 Divergent green skills funding response pattern

The word divergent means “moving or extending in different directions” (Merriam-Webster Dictionary, 1999). Hence, a divergent funding pattern perceives the green economy phenomenon as an alternative, as well as additional, to the perceived actual economy. This funding response expects the NSF to focus especially on green skills as a separate and dedicated trajectory. This kind of funding response emanates from an awareness that green economy dynamics require an alternative response to the actual economy. A devoted funding strategy and policy statement are required to have an impact on dedicated green skills ambiances. An example of this kind of response orientation can be found in the National Climate Response White Paper, which infers that green economic sectors ought to be embraced and advanced (Trollop & Tyler, 2011; South Africa. DEA, 2011).

Although the National Skills Development Authority (NSDA) (1998) has legislatively determined the role of the NSF to be strategic and centrally driven (convergent), the actual funding response pattern moved divergently, because the emphasis was placed on prioritising the sectoral interests of the Sector Education and Training Authorities (SETAs). A general example of a broad divergent skills funding pattern is illustrated through the National Skills Fund eight funding windows during the NSDS I (2001-2005) period (see also Chapter 4). These funding windows assisted in the disbursement of funds in a more organised and controlled manner (South Africa. DoL, 2004). Table 3.1 below provides a summary of allocations to each funding window for the 2003/04 period as well as the total allocations made to SETAs. SETAs were regarded as the main implementing agents for NSF funded strategic projects. The picture of the NSF disbursement pattern prioritised the Strategic Projects Funding window at R615,5 million (see Table 3.1). The NSF's main resources were divergently allocated and mainly informed by demands emanating from SETAs sectoral skills needs. The following quote from the NSF NSDS I Implementation Report (South Africa. DoL, 2004, p. 135) confirmed this: "The total budget for Strategic Projects as allocated in 2002 amounted to R1. 25 billion for a three and half year period. The $\frac{3}{4}$ budget includes rollovers from previous years. In total, R406 million of the R1.2 billion has already been disbursed".

Table 3.1: NSF Funding Windows NSDS I (South Africa. DoL, 2004)

Funding Window	2003/04 Budget 00	Expenditure by March 2004
1. Social Development Initiatives	R272 million	R239,7 million
2. Strategic Projects	R615,5 million	R285 million
3. Learnership Funding	R300 million	R0
4. Skills Support Programme	R45 million	R15,8 million
5. Bursaries	R65,6 million	R65,6 million
6. Innovation & Research	R17 million	R2 million
7. Capacity Building	R 10 million	R600,000
8. Promotion of the NSDS	R39 million	R11,3 million

Another example of a divergent green skills funding pattern during the same period of NSDS I period pertains to how the NSF responded to the environmental agenda. According to NSF respondent no. 3 during the interview process, "*the notions of green growth and green skills*

were not fully coined during the NSDS I period (2001-2005)”. I was able to confirm from this interview and also on the basis of an NSF Impact Study Report (NSF, 2005b) that the NSF has made significant contributions toward green growth. The NSF’s contributions manifested through various skills development projects such as the Integrated Nature-based Tourism and Conservation Management Development (INTAC) nature conservation project. During the NSDS I (2001-2005) and the NSDS II (2005-2010) periods, the mandate of the NSF was driven mainly by sectoral needs and interests. Hence the NSF’s role in funding environment-related projects or green skills was perceived to reveal divergent response tendencies; for example, in the Integrated Nature-based Tourism and Conservation Management Development (INTAC) nature conservation project’s case, the need was determined by the then Tourism, Hospitality and Sport Education and Training Authority, which was the relevant Sector Education and Training Authority (SETA), as established under the Skills Development Act No. 97 of 1998. The role of the NSF was largely determined by what transpired according to the divergent agendas and skills response options advanced by the various skills requirement interests of the SETAs. During this stage, the NSF was also haunted by serious claims of underspending and/or surplus which caused the fund to underperform in the face of desperate public skills needs and expectations. The NSF was heavily reliant on other role players within the skills development system to utilise its funding resources towards meaningful skills training impact. However, during the NSDS I (2001-2005) and the NSDS II (2005-2010) periods, the NSF accumulated resources through a dynamic skills levy income which continued to surpass its own internal capacity, and that of implementing associates, to disburse. On the one hand, the NSF was able to achieve higher levels of funding commitments to skills projects but on the other hand, spending remained unresponsive and mostly funds were returned to NSF coffers unspent (NSF, 2013a; NSF, 2014a).

As already indicated in Table 3.1, the lion’s share was consumed by the Strategic Funding Window during NSDS I period, where the SETAs emerged as the preferred disbursing agents. During NSDS II (2005-2010), according to du Toit (2012), the NSF Social Development Funding Window received the lion’s share of the NSF budget at 37%. The NSF disbursed funds divergently through the Social Development Funding Window as already indicated (see Table 3.1 above).

Divergent response patterns are also noticeable in the New Growth Path (NGP) Framework, where seven key economic sectors were identified, namely infrastructure, agriculture, mining,

the green economy, manufacturing sectors, tourism and certain strategic service sectors. The strategic intention was to prioritise these sectors as national priorities towards employment creation because the New Growth Path targeted the delivery of 300 000 additional direct jobs by 2010 (South Africa, 2010b; South Africa. Department of Trade & Industry [DTI], 2011). The main objective of the NGP has been to centralise the establishment of decent work opportunities as the core focus of economic policies, hence the emphasis on job creation in relation to green growth opportunities. It appears that the green economy receives a dedicated focus divergently along other key sectors, all promising to contribute to the South African economy at large. Skills planning for these new areas of green growth are yet to be centrally defined, reflecting further the divergent model of green skills planning in South Africa. Currently green skills planning for these sectors is left to SETAs, industry and the education and training sector, but this remains a primarily re-active approach (Green Skills Project, 2015). Only recently was a national Green Economy Learning Assessment (2016) commissioned by the Partnership for a Green Economy, but this focuses mainly on policy implementation competence and not on the whole green skills pipeline that is required for building strong national capacity for green skills. It is interesting to note that this study was *not* commissioned by the DHET's post schooling education and training skills planning or research sectors, but by the environmental sector, providing further evidence of the divergent skills planning framework.

In the light of the evidence presented of a pattern of divergent skills patterns for green skills in South Africa outlined above, is a consideration of the strengths and weaknesses of this approach. In reflecting on both case studies from South Africa and Australia, one should be aware that these social contexts are different. Hence, funding response patterns should be carefully considered. However, a closer look at the strengths and weaknesses of the Australian green skills response could improve national green skills funding needs.

- ***Divergent tendencies: A global view***

The Australian Per Capita Green Skills Research Report (CPSISC, 2010) refers to a 'decentralised private' model which correlates with divergent green skills funding response modes. This orientation is led by the training sector and industry (bottom-up). The role and responsibility of government is to provide funding, policy and strategic direction. The United States is a further example of a country that uses this approach. Skills gaps needs are also determined by workforce investment boards with strong stakeholder relations with community

colleges and industry. In terms of the underlying mechanisms driving this particular orientation, the decentralised private approach (United States) embodies a more organic process of green skills formation, with extremely little interference or involvement by national government. Green skills curriculum development is locally determined, but federal funding has been increased in recent times (CPSISC, 2010, p. 4).

The Australian green skills research project highlights the strengths of the ‘decentralised private’ model as follows: a) little dependence on volatile public funding; b) skills provision in line with demand; c) a system that is inherently responsive to economic change dynamics; and e) creates enough space for constructive trial and error dynamics in search of best practice approaches. Weaknesses are the following: a) the concept of green skills takes on different meanings in relation to different variables; b) the control span of green skills in terms coverage is incomplete; and c) quality assurance remains relative due to variability in interest (CPSISC, 2010).

Furthermore, one can also ask how the social justice dimensions and the inner contradictions of the green economy concept will be attended to if the model is a voluntarist model, relying on market demand to drive the emergence of green skills planning. So far, in South Africa, unlike the Australian response, this seems to have led to a reactive system of green skills planning (South Africa. DEA, 2010a); Lotz-Sisitka et al., 2013).

- ***Divergent tendencies: A local view***

From a South African perspective, a number of studies for example the Human Resource Development Council (HRDC) Review (2013), OECD Review (2014) and the White Paper for Post-School Education and Training (South Africa. DHET, 2013a) have confirmed some of the above-mentioned weaknesses. Examples thereof are the lack of an integrated skills planning mechanism towards the identification and articulation of skills needs (in relation to (a) above) and the lack of clear evidence towards quality assurance (relating to (c) above).

To illustrate more divergent green skills funding tendencies, the NSDS III Implementation Progress Report 2011-2013 (South Africa. DHET, 2013b) cited that provincial and local government departments and municipalities have embarked upon their own green economy and renewable energy initiatives towards the realisation of their respective growth and development strategies.

Most of these examples of divergent skills response tendencies are not distinctively and exclusively related to green skills but are informed by broader divergent skills development policy responses and policy events such as NSDS I (2001-2005) and NSDS II (2005-2010). These can also be related back to the prominence of the neoliberal economic model following the Growth Employment and Redistribution Strategy (GEAR) economic policy of government after 1996.

Kraak (2004) also proposed that the post-Apartheid era produced a new institutional skills response orientation, which he contended mirrored global tendencies. The SETAs and the NSF emerged as the main drivers of the National Skills Development Strategy. These two skills formations were envisioned to become main domains for stakeholder relations on skills development. The new vision of skills development emphasised the delivery of skills across occupations and the development of qualifications. The new skills vision moved away from a limited emphasis that was historically placed only on apprenticeship training. Hence, greater focus was placed on sectors rather than businesses, widening labour market impact towards embracing for example the unemployed and historically disadvantaged people.² Respondent 14 had this to say about the divergent nature of green skills responsiveness in the PSET sector:

... Not integrated at all. There is so much that does not sit with a particular SETA. The NSF could pick up on these issues. A number of gaps and crosscutting issues are evident. For example, the first green skills study was in mining, but a number of scarce skills identified in this study pertain to the water sector.

However, the emergence of NSDS III (2011-2016) coincided with the birth of the DHET as a new, more integrated government department dealing with education and training. It amalgamated the division between skills planning and governance and educational sector planning and governance. Previously skills planning was located in the Department of Labour, while education institutions were governed by the Department of Education. This offered a new platform for more integrated education and training policy making and practice. This strategic shift in wider national policy started to show more convergent tendencies in skills planning patterns, in an attempt to integrate fragmented and segmented skills development response options into a comprehensive post-school education and training system (NSF, 2013a); South Africa. DHET, 2013a). I shall discuss this in more detail below.

² See Chapter 7 for a detailed discussion on some of the critiques underpinning neoliberal economic principles such as in GEAR as generative mechanisms for divergent patterns of skills planning.

3.4.2 Convergent green skills funding response patterns

The word convergent means “tending to move toward one point” (Merriam-Webster Dictionary, 1999). Hence, ‘convergent’ in this study, for example, a convergent green skills funding pattern, is an awareness of the green economy as an integral part of the existing economy – a one-economy thinking pattern. This particular funding response presupposes the actual economy as the predetermined option. It inherently implies the creation of strategic impositions like green employment opportunities and green skills funding expectations converging into the existing economy. Green skills are viewed as integrally part of the existing and perceived political economy. Respondent 4, during the interview process, emphasised the importance of “*not categorising green skills as a special field of interest or a dedicated skills domain*” but rather as essentially part of the standard skills development scenario and the green economy as fundamentally reflecting the same economy. Respondent 9 agreed, “*It is important not to view green skills as distinctly different to the skills agenda in general*”.

Under the framework of NSDS III (2011-2016), the NSF’s mandate was understood to be above sectoral needs and expectations. The NSF’s role started to emerge on a national platform and was driven by national interests and national expectations as opposed to sector-based expectations. It was during this stage that the embodiment of green growth notions manifested more concisely in a number of strategic policy documents like the National Growth and Development Plan (2012), NSDS III (2011-2016) and the Industrial Policy and Action Plan (2014).

Further evidence of this convergent pattern is found in the NSDS III declaration that the NSF is a “national resource”. The NSF was expected to play a catalytic role across all ambiances of skills needs, catalysing reluctant potential due to historical challenges like a fragmented skills development landscape and disproportionate institutional resources and capacity in the technical vocational and training space (NSF, 2013a). The NSDS III, section 5.2.1 of paragraph 3, categorically states that among the priorities that will take precedence in the NSF will be: “Projects that are in alignment with skills to support the green economy”. This confirms the strategic shift towards national green skills funding interests in support of key national policy frameworks like the New Growth Path and the Industrial Policy Action Plan (NSF, 2013a; NSDS III 2011-2016; NSF, 2015a). Table 3.2 below clearly shows the spread of the NSF’s investment in its role as a catalytic fund during the climax of the NSDS III period. Unlike the divergent funding response pattern visible during the NSDS I and II periods, the NSF’s funding

response pattern during the NSDS III period shows a strong consolidation in ambiances of national interests such as education and training through PSET partners such as TVET colleges, universities and other national demands.

The convergent funding commitment of the NSF above is also evident in the NSF Annual Report (2015/16):

The majority (56%) of the NSF's funding towards learners was towards learners in the higher education sub-system (universities), which amounted to R1.574 billion, followed by funding towards workplace-based learning at R762.3 million (27%) and TVET colleges (16%).

Another example of convergent funding response patterns is confirmed by the National Treasury's Performance Review of the NSF (2014a). See Table 3. 2 below as per the NSF's expenditure pattern for the 2012/13 financial year:

Table 3.2 NSF expenditure response pattern (DNA Economics, 2014)

Description	Amount (R'000)	Percentage
Training	R2 345 687	89.5%
Of which:		
<i>Technical and vocational programmes (FET Colleges)</i>	<i>R 1 131 066</i>	<i>43.2%</i>
<i>Graduate and post graduate programmes (NSFAS*)</i>	<i>R 744 573</i>	<i>28.4%</i>
Total FET and NSFAS	R 1 875 639	71.6%
<i>Short skills programmes</i>	<i>R 470 048</i>	<i>17.9%</i>
Capacity building	R 266 441	8.6%
Research	R 39 980	1.5%
Administrative and operational costs	R 5 012	0.3%
<i>Source: DNA Economics. FET - Further Education and Training. NSFAS* - National Student Financial Aid Scheme</i>		

The Expenditure Performance Review of the NSF by the Department of National Treasury (NSF, 2014a) confirmed that the majority of the NSF's funding resources were allocated in support of covering shortfalls in fiscus funded programmes like National Certificate (Technicon) and National Certificate (Vocational) training interventions as part of the TVET sector's mandate. The Expenditure Performance Report (EPR) (DNA Economics, 2014) study flagged this particular funding response pattern as limited because it constricts the NSF's role

as a catalytic mechanism to fund new programmes more relevant to industry expectations and to increase student admissions in scarce skills. Another critique raised by the EPR (DNA Economics, 2014) is the possibility that this particular funding response pattern might create a sense of dependency by TVET colleges on NSF funding resources, especially in cases where funds become available for longer periods. The following statement by the EPR (DNA Economics, 2014, p. ii) study captures the critique well: “The practice of funding shortfalls raises questions about the cost-effectiveness of having different government agencies funding university education”. The following piece of reflection focuses on global examples of convergent green skills funding response patterns.

- ***Convergent tendencies: A global view***

The Per Capita Green Skills Research Report (CPSISC, 2010) model of ‘formal public’ green skills delivery orientation correlates with this funding approach, as embodied by its chief proponent, namely the United Kingdom. The convergent funding awareness pattern emanates from an understanding that any notion of another economy, be it labelled green or brown, should be resisted (CPSISC, 2010). Hence the strategic push by governments embracing the convergent awareness response pattern to encourage and grow green economic endeavours in all sectors. Therefore, in this particular funding response, the labelling of economic sectors as distinctly green becomes highly problematic. The national government assumes the main leadership role in terms of green skills funding delivery. Consequently green skills delivery becomes superimposed on the existing training sector. Skills needs and gaps are solely determined through a national skills audit process (CPSISC, 2010). In terms of the underlying mechanisms driving this particular manifestation of green skills, the formal public approach (in the United Kingdom) has been characterised by a heavy-handedness where green skills planning and development funding are nationally directed and state controlled. This response to the green skills function has led to a number of restructuring processes, for example, the establishment of a Skills Funding Agency and another national auditing process (CPSISC, 2010).

Again, given the recent support for this emerging model of funding response in South Africa, it is worth considering the strengths and weaknesses of this model. Some of the strengths embedded in the ‘formal public’ green skills awareness pattern appear as follows: a) green skills are viewed as a national priority, receive dedicated funding and constitute an officially sanctioned function or practice; b) due to the fact that national government is taking the lead,

formal national skills training audits are done to identify skills gaps; and c) this approach results in the formalisation of clear definitions and policy imperatives. The following weaknesses are noticeable, for example: a) it is extremely time consuming to develop and implement; and b) the green skills delivery pipeline risks being driven by bureaucracy rather than the emerging needs in the training sector and work places (CPSISC, 2010, p. 4).

In a South African green growth context this could be a problem given that some of these green economy sectors are emerging very rapidly, as shown by the growth of renewable energy practices (see the Gela Refinery Sustainability Report, 2012), especially also because the South African skills sector has been criticised for being over-burdened by bureaucracy. The Human Resource Development Skills Review Report (2013, p. 18) further accentuated the claim that the national skills development system has become bureaucratically entangled. The report states:

The consequence of poor systems and processes, or over-bureaucratic rules created to address fraud, is a system that is viewed as completely incompetent by many crucial stakeholders, particularly employers. The time taken from making an application to a SETA for a grant and having the grant approved and paid can be anything from six months to (in worst cases) over 18 months. By the time a grant is approved, the skills need may either have been met by other means or have changed.

As can be seen from the above discussion, both the convergent and divergent response options have strengths and weaknesses. I propose here that the convergent and divergent response options are not necessarily opposites but could exist within a context of dynamic engagement.

3.4.3 National green skills funding: A critical realist dialectical engagement

The following discussion deals with the relationship between divergent and convergent response patterns within Bhaskar's (1993) notions of 'dialectic', 'absence' and 'emergence'. The diagram below illustrates how the analytical pointers of divergence, convergence and dialectic emerge according to the different NSDS periods. Both NSDS I and II indicate the role of the NSF as divergently determined by sector needs, expectations and requirements. However, the dawn of NSDS III signified a shift towards a more convergent response modelling hereby consolidating the NSF's mandate as determined by national interest, as opposed to being driven by sectoral demands. Towards the middle of NSDS III, a more dialectical response pattern is emerging that embeds the integrated and differential features of DHET's vision of a post-school education and training system (see also Chapter 5) (NSF, 2013a).

- ***Absence-emergence and divergence-convergence: Towards a dialectical green skills funding response pattern***

The notion of ‘dialectic’ refers to a dynamic process where various notions continuously emerge through interplaying engagements responsible for patterns or forms (Bhaskar, 1993). Bhaskar’s (1993) notion of dialectic does not necessarily mean the emergence of objects as opposites in a given structure. For him, these elements exist in some form of differentiated but integrated interplay. He perceived the dialectic as the embodiment of structures determined by processes of emergence and vice versa. These relations are dialectically connected and exist in the context of creative tensions loaded with potential for transformative praxis. Furthermore, he viewed absence as negativity which becomes the property of incompleteness reflecting the ontological status of reality itself. He argued for the open-endedness of the nature of reality based upon the issue of absence or non-being (Creaven, 2007; Norrie, 2010; Bhaskar, 1993). Bhaskar (1993) also contended that absence emerges as a key for change and transformation. Hence, absence precedes existence. The sense-making of reality embodies transformational powers because of absence (Bhaskar, 1993, p. 240; Shipway, 2010, p. 96). Henceforth, Bhaskar’s notion of absence and emergence becomes helpful as the two sets of continuums overlap, namely absence and emergence, on the one hand, and divergence and convergence, on the other.

On the one hand, from a convergent perspective, the absence of a strategic mandate driven by a national skills agenda emerges as quite prominent during the first National Skills Development Strategy (2001-2005) and extends well into the National Skills Development II (2005-2010). The initial divergent tendency resulted in a great deal of disparity and competition between sectors that left some potentially consuming more than their fair share with greater prospects of growth and others marginalised with diminished chances of growth (NSF, 2013a; HRDC, 2013). The NSF was expected to respond divergently to sectoral demand-led requirements which left certain sectors marginalised and restricted in terms of performance due to lower bases of resources (NSF, 2013a; South Africa. DHET, 2013a). The NSF’s close proximity to the SETA environment during this time is particularly noticeable (NSF, 2013a; NSDS, 2001-2005). Although the NSF was always meant to focus on national priorities, the disbursement or funding pattern of the fund appeared to be divergently driven.

The dawn of the National Skills Development Strategy III (2011-2016) displayed the emergence of a strong push towards the funding responsiveness of the NSF being

predominantly determined not by sectoral needs (divergent) but towards national interests (convergent) (NSF, 2013a; NSDS, 2001-2005; NSDS, 2005-2010). During this period, the NSF started to embrace unequivocally the notion that the fund's mandate ought not to be driven by sectoral interests but rather by a national developmental agenda. Further, it is assumed that the NSF's mandate was above sectoral interests and it strategically intended to fill existing skills gaps needs, hereby unlocking development potential. Hence the absence of divergence during this period becomes glaring (NSF, 2013a; NSDS, 2001-2005; NSDS, 2005-2010). The following Figure 3.2 relating to the NSF's investment profile during the 2015/16 financial year reveals how the NSF's funding response patterns display examples of a dialectic tendency as it strives to play the role as a skills development funding catalyst for the whole PSET system.

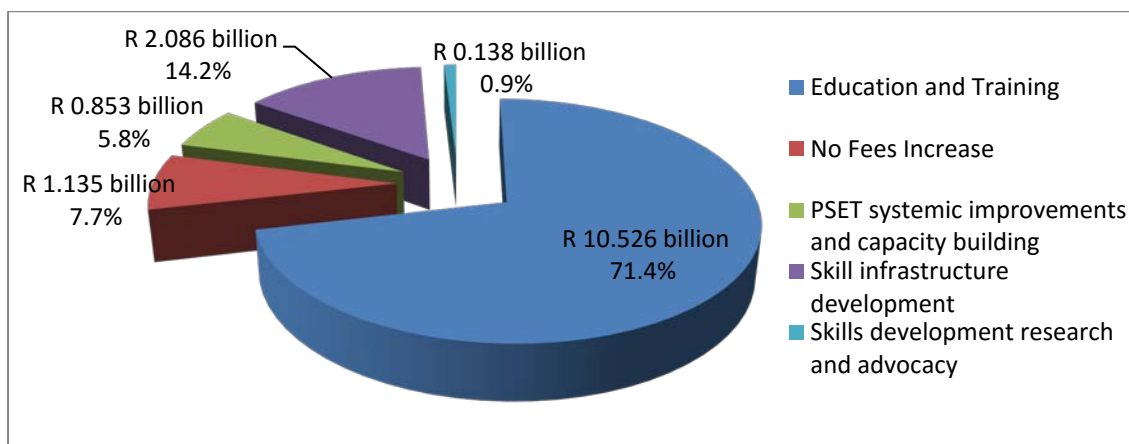


Figure 3.2 NSF Skills investment profile (NSF, 2015/16)

The majority of this funding was directed at supporting the various projects linked very broadly to the implementation of the National Skills Development Strategy III. As Figure 3.3 shows, NSF projects account for R 10.526 billion (71.4%) of total expenditure disbursed through grants in support of education and training interventions. The second biggest cut of R 2.086 billion (14, 2%) (see purple in figure) was spent on skills development infrastructure capacity support. This clearly reveals an NSF funding response pattern that embraces a more catalytic role with both convergent and divergent tendencies. The least funding was disbursed to cover funding needs as per Skills Development research and advocacy (see light blue: R 0.138 billion or 0.9%).

Another example of a catalytic response tendency is the 7.7 % contribution to the 'No Fees increase' demand that emerged as a national challenge. This confirms the NSF's convergent and divergent funding responsiveness in relation to an issue that extemporaneously appeared.

Moreover, a good example of the movement between convergence and divergence response modes is noticeable during the period of the NSF towards the middle of the National Skills Development Strategy III (2011-2016 as extended to 2018) and the White Paper on Post-School Education and Training. The shift towards a more convergent response emerged shortly after the establishment of the DHET, the NSDS III and the White Paper for Post-School Education and Training in 2011. Henceforth the notion that the NSF ought to start playing a catalytic role, fully responsive to national priorities like the green economy and supplementing resource shortages in the name of national significances relating to green skills in particular, became apparent (NSF, 2013a; DHET, 2013a).

Bhaskar's (1993) view of dialectic relational notion becomes helpful in this regard. The one form of funding response should not be sacrificed for the other. Both funding response options are needed and could exist in a context of dynamic interplay of absence and emergence. Hence the notion of a dialectical relationship between the NSF and the wider green skills funding landscape. This particular funding response pattern culminates in what I describe as a dialectical response that is integrated and differential in nature.

- ***Dialectical tendencies: A global view***

Further evidence that could support a dialectical green skills funding response approach is found in the Per Capita Green Skills Research Report (CPSISC, 2010) report. This report alludes to the third form of green skills delivery option which becomes the recommended option in this study, but through a strengthened dialectical framework (see Chapter 8). The 'informed public' as per the Australian Per Capita Green Skills Research Report (CPSISC, 2010) model strikes a balance between convergent and divergent response modes.

The abovementioned report (CPSISC, 2010) cited Germany and Denmark as the leading countries and proponents of this green skills funding awareness pattern. The delivery of green skills is embedded in the existing public training programmes through organic collaboration with industry. Skills needs are determined by national government but with close collaboration with organised labour and industry partners (a balance is required). In terms of the underlying mechanisms driving this particular approach, the informal public approach (Denmark and Germany) strikes a balance between strong state structures but also embraces industry practices, especially the embeddedness of green skills orientations in respect thereof. Interestingly, none of these countries have national policy statements. It is assumed that green

skills awareness has been integrated into the ethos of training interventions. These countries have also made greater funding commitments in comparison with the other approaches.

Again, of interest to the emerging South African green skills funding pattern are the strengths and weaknesses of this approach. The inherent strengths are the following: a) it exploits potential ambiances that offer competitive edges within the economy; b) it makes use of existing institutional formations to advance the cause of green skills; c) it focuses on generic green skills implementation; and d) it emerges as independent of any additional support via formal policy or policy funding support. Some of the weaknesses are the following: a) it fails to capture green skills as a strategic priority; and b) the introduction of the quota system had an impact on some training places that unfortunately resulted in empty training venues because people did not comply with quota requirements (CPSISC, 2010, p. 4). This particular approach is strongly recommended by the Per Capita Green Skills Research Report (CPSISC, 2010).

- ***How can global lessons inform national green skills funding response patterns locally?***

Importantly, the Per Capita Green Skills Research Report (CPSISC, 2010) identified five strategic level lessons from these countries, emerging according to the following, which I call green skills pointers for emergence in a dialectical system: a) institutional structure, b) skills content, c) funding approach, d) industry engagement, and e) workforce development. A brief look at each in this regard suffices with special reference to related South African response modes and challenges (CPSISC, 2010).

a) National green skills funding: Institutional arrangements

Firstly, ***institutional structure***: It was noted in the Per Capita Green Skills Research Report (CPSISC, 2010) that green skills development was in its infancy across all countries. This has been the case even in some of the most advanced economies. It was confirmed that most of the formal green skills programmes commenced after 2007. In countries like Germany and Denmark it was noted that no national or integrated green skills policy existed, but rather green skills had been embedded in sector-specific training enterprises. A strong awareness of green skills as part of the national skills development system predominantly prevailed. The delivery of green skills occurred through existing skills development infrastructure. Important for South Africa, which is experiencing economic constraints, is the insight that it has proven too costly and complicated to set up dedicated resources exclusively for green skills purposes. The

recommendation in respect of the Per Capita Green Skills Research Report (CPSISC, 2010) therefore suggests that it is not advisable that new and dedicated institutions be built in pursuit of green skills development. Best practices derived from the green skills research projects clearly indicate that in the event of considerable new funding commitments, the regulation of green skills training providers emerges as critical (CPSISC, 2010).

The major institutions contributing to green skills in South Africa are as follows: a) South African Qualifications Authority (SAQA) and the other councils like the Quality Council for Trades and Occupations (QCTO) and Umalusi (the Further Education and Training Quality Council), b) the DHET, c) departments with environmental functions, c) industry professional bodies and civil society, d) SETAs and NSF, e) universities, f) schools, and g) colleges (Green Skills Project, 2015). All these role players are responsible for driving green skills development from their respective platforms and collaboratively. The greatest challenge facing these green skills stakeholders is the ability to integrate and share work practices systematically to ensure a more holistic embodiment of green skills development. The following quote from the South African Environmental Skills Planning Forum National Green Skills Project (NESPF, 2014) encapsulates the integrated and differential imperative succinctly:

It takes a whole system to develop green skills! Skills intelligence, planning, teaching and quality assurance are needed, along with career guidance and individuals making wise decisions about study and work. All tiers of government create enabling conditions through policy and funding support. National departments, the South African Qualifications Authority, Sector Education and Training Authorities and the Quality Councils all have particular roles to play. Employers in industry, organised labour, professional bodies and environmental agencies must identify needs and respond. Schools, colleges, universities and workplaces, too, are places of learning.

b) National green skills funding: Green skills content

Secondly, **green skills content**: The Per Capita Green Skills Research Report (CPSISC, 2010) cited skills content as another green skills pointer. Green skills content is expected to be organically determined. Also, skills content is driven by direct commercial requirements and opportunities and not really by comprehensive policy frameworks. Therefore, green skills training providers initiated and prioritised sector specific interventions above the introduction of more generic green skills programmes. Also, an exact definition of green skills should not be a priority obligation because in most cases no precise definition of green skills was confirmed. Also, it is recommended that green skills development should begin with sector-specific skills interests which are later envisaged to become more generic.

However, the NSDS III (2011-2016) has raised a responsibility to focus on the importance of building green skills through proper skills planning processes. It is envisaged that the responsibility should be shared across SETA sector skills plans and other key stakeholders. This has led to green skills research projects being commissioned from different platforms (Green Skills Project, 2015). However, these sector-led projects and related findings become fragmented without effective integration to ensure that inputs are incorporated into mainline skills planning processes. The current green skills domain lacks methodologies, conceptual frameworks and advocacy-driven interventions for sector-specific studies that also provide for coherent development of a national system of green skills development (DHET, 2011a; NESPF, 2014; Green Skills Project, 2015).

In response to this challenge, the Green Skills Project of the National Environmental Skills Planning Forum envisaged that accredited training programmes or course material be developed for appropriation on sectoral level or institutional level. These programmes will be informed by green skills research modalities, instruments and tools emanating from best practice cases and related pilot projects (NESPF, 2014).

c) National green skills funding: Funding methodology

Thirdly, *funding approach*: The Green Skills Project Report (CPSISC, 2010) indicated that from a green skills training provider perspective, there has been serious uncertainty regarding the sustainability of funding flows from fiscal budget provisions. These green skills training providers were mainly driving green skills funding endeavours and were highly dependent upon government budget allocation to ensure organisational sustainability. Investments from industry were perceived to be funding that flowed from outside. However, industry investment emerged as the main source of dedicated green skills funding allocations. Long-term funding partnerships through the mechanism of grant-making are preferred, to cultivate more effective stakeholder collaboration (CPSISC, 2010). Rather than establishing green skills initiatives from scratch, it is strongly recommended that government should rather fund project-based groups of obtainable green skills implementers to assist with the roll-out of green skills' best practice. The United States and Denmark have emerged as pockets of excellence when it comes to the provision of funding to project consortiums proven to be effectively implementing green skills practices (CPSISC, 2010).

The funding interests as per the contributions of both the NSF and the Green Fund become examples of key South African response modalities in terms of green skills contributions. Note

the following comment striking at the heart of the mandates of the NSF and Green Fund by Respondent 14, who stated:

Generally, green skills is understood as important. However, the absence of green sense making is not the only concern. There are other problems e.g. effective funding. How do we address the lack of green skills responsiveness in terms of funding readiness?

See Chapter 6 for a detailed discussion on how similar funding interests compete toward the same cause. Contributions by both funds, namely the NSF and the Green Fund (i.e. funds for green skills development), could be seen as somewhat small scale in comparison to, for example, the research funding that is set aside for the following development projects as tabled below:

Table 3.3 Comparison of green investments (Sourced from NSF, 2015a; Hattingh, 2014; DBSA online report, 2016)

Green skills initiative	Green economy sector	Value (ZAR)
NSF SARETEC	Renewable energy	105 million
NSF INTAC Project	The Integrated Nature-Based Tourism and Conservation Management (INTAC)	108 million
Development Bank, Department of Environmental Affairs via the Green Fund	Low carbon projects	1.1 billion
Jobs Fund	Non-governmental organisations	300 million
National Skills Planning Forum	Green skills capacity building	6 million
Industrial Development Corporation (IDC)	Green industries e.g. solar water geysers	25 billion

d) National green skills funding: Industry relations

Fourthly, **industry engagement**: According to the Per Capita Green Skills Research Report (CPSISC, 2010), industry engagement emerges as the fourth important pointer towards ensuring the proactive development of green skills delivery. The need for green skills development was effectively forecast well before governmental awareness became apparent, with the result that industry in fact sowed the first seeds of green skills investment. This was

especially true in the case of the United States, where a reluctance to commit was noticeable from certain sectors. Industry's sense-making awareness of green skills demands and the provision thereof emerges as pivotal because of its inherent potential of duly required knowledge, expertise and technology advancing the progressive development of the green skills agenda. It is expected of industry to strengthen its role through collaboration to ensure that training content is responsive to the needs and requirements of the work place. It becomes critical therefore that the NSF should engage industry partners proactively to expand the development of green skills in a progressive manner.

In South Africa, it is not possible to involve industry without involving the trade union movements. Locally, the Congress of South African Trade Unions (COSATU) has stated that a transition to a green economy is unavoidable (Cock, 2012). This labour federation has underscored the need for the reskilling of workers and the retention of jobs in this space (Cock, 2012). The National Union of Metalworkers of South Africa (NUMSA), a COSATU affiliate, for example, has vetoed the concept of green jobs as a dedicated element of an emerging green awareness and as an example of untenable capitalism which is geared towards circumventing substantial structural changes in the name of economic expansion. Linked to this is the commitment to maintain the status quo of institutional power and monopoly of institutions (Harris-White, 2008).

Moreover, a number of national accords such as the Basic Education Accord, the National Skills Accord and the Green Economy Accord are proof that organised labour has gone on record not only to show commitment in respect green skills development, but that they also anticipate the delivery of these promising policy endeavours. This means that labour, especially through its National Economic Development and Labour Council (NEDLAC) constituencies, have played their part in promoting the values of these accords towards employment creation. The Green Economy Accord makes the following commitments: a) the roll-out of one million solar water systems by 2014/15; b) increasing investments in the Green Economy; c) procurement of renewable energy; d) promotion of biofuels for vehicles; e) launching clean coal initiatives; f) promoting energy efficiency; g) waste recycling; h) electrification of poor communities; and i) employment development in the green economy through promotion of localisation, youth employment, cooperatives and skills development.

Moreover, there are some lessons to be learned from global experiences like the Australian Per Capita Green Skills Research Report (CPSISC, 2010). For example, a case in point is the

proactive involvement of industry. In South Africa's case, the NSF's (NSF, 2013a; NSF, 2016a) funding strategy suggests that grants are designed and initiated by government through the NSF, while industry and other skills development stakeholders reactively wait for a Request for Proposal (RFP) to be issued by the NSF. In terms of the Per Capita Green Skills Research Report, it is noticeable that industry is taking the lead as the main source of dedicated green skills funding. However, the South African reality dictates an expectation on the part of industry to be incentivised by government grants. See the following statement by the NSF's Executive Officer (NSF, 2016b) relating to a huge funding commitment towards artisanal training:

The Department of Higher Education and Training (DHET) has taken the responsibility of ensuring that engineering students are well equipped with workplace experience in order to grow the country's economy. More than R500 million has been set aside by the National Skills Fund with a view to producing employable graduates in the area of artisan development, in line with the National Development Plan (NDP) target to produce 30 000 artisans by 2030. Long-term partnerships with State Owned Companies (SOCs) are bearing good fruit in this area. (p. 23)

Another example is the NSF's work integrated learning (WIL) funding programme, which has raised tremendous expectations on the part of industry role players. According to the NSF Annual Report for 2015/16, ZAR 2.5 billion has been made available to the technical and vocational education and training colleges, which will be implemented through work-based training initiatives, benefiting not only learners but industry as well. Historically, industry has picked up the whole price tag for artisan apprenticeship training in the work place, but with government's initiative through the NSF funding, most, if not all, work place training costs will be covered by NSF grant funding. This begs the question which has been raised by one of the respondents (no. 8) during the interviewing process, namely: *"How much of the NSF grant funding is playing a role as replacement cost contributor and not the role of complement contributor?"* The latter presupposes an initial and tangible commitment in terms of which the expectation is raised for a possible funder to assist additionally through a particular resource allocation. Another example of the reluctance on the part of industry to pick up the whole skills training price tag and the avoidance of associated risks as a case in point emanates from my own personal experience as an NSF fund manager. In terms of the service level agreement between technical and vocational education and training colleges (TVETs) and automotive industry partners, companies are becoming reluctant to cover the insurance costs for apprentices working and training in workplaces. This cost was historically funded by

employers but TVET colleges are now expected to cover these costs because these artisan apprentices are perceived to be college learners and not industry learners. A perceived industry benefit is the cost saving acquired by industry in terms of recruitment. The almost ZAR 64 million of NSF grant funding in terms of investments toward work integrated learning (WIL) flowing through industry implies that minimal resources need to be put in place to recruit external prospective employees. Companies simply have the privilege and benefit to recruit from the pool of NSF-funded apprentices at huge recruitment cost savings. Hence, the response of interviewee as to whether NSF's grant funding is appropriated as replacement costs or as strategically intended value-added grant funding benefits.

e) National green skills funding: Labour relations

Lastly, **workforce development**: In terms of workforce development as a green skills pointer, the Per Capita Green Skills Research Report (CPSISC, 2010) identified a shortage of properly qualified green skills trainers. Due to the fact that most of the green skills required were new, only a few people had experience in these areas and those properly qualified were even scarcer. Moreover, making green skills attractive as an upskilling necessity for existing staff presented as a major cultural challenge. Worker education was flagged as an urgent and priority skills need. This can be pursued in a twofold way, namely a) upskilling of existing workers, and 2) recruitment and skilling of new entrants in specialised areas, in an effort towards sustainability.

The ILO Skills for Green Jobs study report (2010; 2011b), of which South Africa was also part, identified a number of factors responsible for the greening of economies. The changeover to greener jobs due to changes in the physical organic environment and triggered by unfriendly consumption practices, is affecting workforce development and directing this into new domains. The transition has been initiated and fuelled by the impact of environmental policy imperatives driving industry towards greater sustainability, hereby escalating the need for green job skills. The study cited examples of the mining and automotive sectors as key economic domains of the South African economy. Green structural changes will result in workers moving out of declining sectors into emerging new sectors. This phenomenon creates a demand for the retraining of workers. An example of this is in the mining sector where companies gear up to reduce high carbon emissions and the introduction of more sustainable production practices. Another demand created by the green transition is the need for expected new jobs as new opportunities start to emerge. Matching and placing workers migrating from

diminishing workplace expectations into new opportunities will place greater responsibility on training systems assisting the process of maximising the skills of workers.

In this regard, South Africa's capacity to deal with the green job skills requirements has been identified as occurring on an ad hoc, ungainly, disjointed and insufficient basis (South Africa. DEA, 2010a; ILO, 2011b; HSRC, 2009; Lotz-Sisitka & Ramsarup, 2014). A repeated recommendation in these studies is to support the development of human capacity development skills (i.e. a new cadre of educators and trainers with the relevant knowledge and skills to build the green economy). There are currently few trainers in the TVET sector with green skills knowledge and skills.

The German Federal Ministry for Economic Cooperation and Development (BMZ) initiated a project entitled *Skills development for a green economy*. The project has a special focus on technical and vocational education and training colleges (TVET) and seeks to address the following identified challenges as the TVET sector (cited on their webpage GIZ, n.d.):

Despite many people being out of work, companies are unable to fill vacancies due to a lack of suitably qualified applicants. Educational levels at public technical and vocational education and training (TVET) colleges are also low, with teaching staff poorly trained. There are no demand, workplace-based and work process oriented TVET programmes in which enterprises play a major role in training skilled workers. Enterprises are primarily focused on providing in-house training to their own staff and do not work with the public TVET colleges.

This initiative has only touched the tip of the iceberg in terms of college lecturer training. Sector education and training authorities (SETAs) also need training to improve green skills planning, and in higher education and training there is a need for curriculum innovation in green skills areas (South Africa. DEA, 2010a; HSRC, 2009).

South Africa's *Groen Sebenza* programme has demonstrated a clear need for employers to maximise the utilisation of instruments that could positively produce green employment opportunities, for example via the Green Jobs Fund (NESPF, 2014). The evaluation of this initiative has shown that one of the most difficult aspects was institutionalisation of green skills into workplaces, while one of the most positive dimensions was the training and induction model. The *Groen Sebenza* project was launched on 8 June 2013. The Minister of Water and Environmental Affairs, Mrs Edna Molewa, publicly made a commitment of ZAR 300 million. The programme focused on 'Catalysing access to Employment and Job Creation in Ecosystem Management' (Groen Sebenza Launch Report, 2013). The objective of the project was to

develop a group of young biodiversity professionals with the skills, knowledge, experience and proper attitude to secure meaningful employment opportunities in the biodiversity sector.

3.5 Towards an integrated and differential green skills funding approach

The dialectical model of funding, along with the five green skills pointers as alluded to by the Per Capita Green Skills Research Report and analysed in the South African context, namely institutional structure, skills content, funding approach, industry engagement and workforce development, has become crucial even for the South African context, especially now when the country is anticipating the strategic shift towards NSDS IV that emphasises an occupations-centred skills development orientation (South Africa, 2015). As shown by the Australian Per Capita Green Skills Research Report and building on the dialectical model for skills funding that I have proposed above, I would suggest that dialectically these green skills pointers have serious implications for national green skills planning and implementation. A brief look in respect thereof follows.

The South African national green skills situation is in dire need of a dialectical response to ensure the development of green skills capacity in relation to stakeholder relations and communication, as suggested by NESPF (2014, pp. 4-5):

The need for Green Skills is a common thread running through all South Africa's Green Economy plans, yet there is no catalytic initiative to build the capacity of the national skills development system to pro-actively and strategically produce Green Skills for the Green Economy. It has already been clearly recognized that a dire lack of appropriate skills places a serious restriction on South Africa's chances to grow a green economy (ILO, 2011) and to facilitate development opportunities.

At the very core of the strategic mandate of the NSF is the obligation to respond to national priorities. The essence thereof has been captured in a number of strategic documents like the NSDSIII, NSF Strategic Plans, and a few national strategic policy documents, in terms of which it is expected that the NSF ought to respond as a national key funding resource. The NSF's Strategic Plan for 2015/16 makes specific reference to green skills as a funding obligation. Respondent 1, during the interviewing process, also confirmed that "*green skills funding has become a national priority*" (NSF, 2015a; NSF, 2013a).

Lotz-Sisitka and Ramsarup (2014) suggested that the NSDS III and the National Development plan point in the right direction but fail to achieve what they set out to do due to the following challenges:

a) to plan for and supply green skills, (b) to determine and unlock the demand (which may also be latent), and (c) to plan for this new stream of supply and demand across the post schooling skills development system, and (d) to integrate this into existing systems (e.g. the national career guidance portal of SAQA), these mechanisms are also sub optimally used. (pp. 6-7)

Skills planning, as a national challenge, has serious implications for green skills. For example, how sure are we about what kind of green skills we really need in South Africa, if information regarding supply and demand is not reliable? It is not clear whether the NSF is currently able to respond effectively to its green skills mandate. This could be due to the lack of proper skills planning and the absence of a dedicated and integrated skills planning mechanism. Expenditure thresholds are set with a considerable amount of space for the DHET to influence the selection of projects. A case in point is the NSF's contribution in assisting the TVET sector in funding the access demand of about 58% of students collectively through the National Student Financial Aid Scheme during the 2012/13 financial years (NSF, 2014a).

Moreover, studies by the HSRC (2009), ILO (2011b) and DEA (2010a) have indicated that the green skills planning and implementation are happening in an uncoordinated, reactive and inadequate fashion relative to the demand thereof (Lotz-Sisitka & Ramsarup, 2014). Respondent 14 commented similarly on the challenge facing SETAs in relation to the national green skills funding within the post-schooling context: *"There is greater need for cross-cutting engagement and integration ... A more systematic building of research work is needed"*.

Along a similar trajectory, Lotz-Sisitka and Ramsarup (2014) claimed that planning processes in respect of the Strategic Integrated Programme (SIP) Eight – *designed to support green energy initiatives on a national scale through a diverse range of clean energy options* – have flagged a number of skills gaps, for example, a shortage exists of environmental managers and environmental engineers. Moreover, a huge challenge presents itself to find integration pointers and opportunities for green skills to be included in the major occupational categories. Despite the fact that this requirement is of paramount importance, no dedicated capacity exists to facilitate the integration of green skills accordingly. The national green skills research programme is developing methodological guidance for such research, but lacks the capacity for the national level and scale of analysis needed to address this need (www.greenskills.co.za).

Lotz-Sisitka and Ramsarup (2014) claimed that experiences as reported at the Eastern Cape Green Skills Forum confirm the inadequate capacity in terms of skills planning, constituting

blockages and impeding the effective implementation of green economy objectives. An example of this claim is noted in relation to a particular skills shortage in the wind farm development area: skilled people had to be imported from elsewhere and far beyond the borders of the country. Also, Respondent 14 made the following statement lamenting how SETAs are responding to the challenge of green skills research and planning:

The mechanism of outsourcing research is very unfortunate. This kind of research is fragmented and repetitive and not at all adding real value. How is the research being used? There is an absence of a mechanism to work with the research that is already done.

Another example in this regard is the challenge to achieve the one million solar water heaters per annum as per the Energy SIP target: the skills shortage is effectively impeding the achievement of this target. The Biodiversity Human Capital Development Strategy flagged the matter of inadequate skills capacity as very serious and as having a high probability of impeding the transformation of the biodiversity sector (SANBI/Lewis Foundation, 2010).

Based on the discussion above, the role of the NSF as a funding catalyst appears to be significant in the context of South Africa's transition to an emerging renewable energy horizon (NSF, 2016a and 2016b). The country's skills development machinery, in particular the NSF, is called upon to make a meaningful contribution in a context of severe green economy constraints such as the highly carbon-driven nature of the economy and the prevailing role played by mineral resources in the country. Another example in respect thereof is the critical contribution the mining sector is making in terms of South Africa's economic performance in global markets (National Planning Commission, 2012; Cock, 2012; Death, 2014).

The huge number of people employed in the energy-concentrated sector attests to this fact. In confirming the important role the NSF is expected to play, see the statement below from the former Minister of Higher Education and Training (NSF, 2016) with regard to the NSF's pivotal role in the current skills demand scenario:

The South African Renewable Energy Centre (SARETEC) funded by the NSF... is a way of addressing the shortage of skills that are necessary to unleash progress towards a shift to Green Economy solutions. (p. 16)

3.6 Conclusion

This chapter has located the issue of national green skills funding within the complex nature of the dynamics of the green economy and related debates, locally and globally. The double continuum of emergence and absence, on the one hand, and divergence and convergence, on

the other hand, was expounded across the three National Skills Development Strategy periods. The emergence of different responses to the green economy phenomenon proved to have important implications, especially for the NSF and green skills. The green economy debate remains an ongoing engagement. The debate is deeply embodied in people's interests and values and is culturally embedded, while also characterised by deep-seated contradictions.

This brings to a close the first part (A) of the first research phase, namely the descriptive analysis. The next chapter introduces the second part (B) of the first research phase, focusing on the story of the NSF as a funding agency in transition.

CHAPTER 4
THE FUND ON THE OTHER SIDE
PHASE 1: DESCRIPTIVE ANALYSIS – PART B

4.1 Introduction

As introduced in Chapter 1, the National Skills Fund (NSF) is South Africa's multibillion rand (ZAR) skills development fund. The NSF's journey relays a story of failure as well as success as it navigates the challenging waters of a changing skills development landscape in the country. The NSF is recognised as a premier funding mechanism within the DHET's post-school education and training system and, as noted in Chapter 1, it is the main focus of this study.

This chapter addresses the second sub-research question namely: *What are the processes, dynamics and event mechanisms that influence the NSF's current grant-making responsiveness in relation to national green skills funding?* It provides Part B of the Phase 1 descriptive analysis in this study. It extends and complements Chapter 3, which is also a descriptive analysis in the study design. Hence, it describes the NSF and its various event mechanisms, for example, South Africa's national skills development strategies key policy event mechanisms.

The importance of the NSF as a funding institution in the South African skills development landscape cannot be overstated. According to Hodgson (2006), institutions constitute the very fabric of societal life and play an extremely important role in society: institutions are "the systems of established and prevalent social rules that structure social interaction" (p. 2). Institutions and their activities determine the structure of life, frame our perceptions and preferences and can play a vital role in creating perceptions. Hodgson (2006) further argued that "generally institutions enable ordered thought, expectation and action by imposing form and consistency on human activities". Consequently institutions enable us but also constrain us (Hodgson, 2006, p. 3). Essentially, it is the abovementioned significance that establishes the basis for a descriptive analysis of the NSF as an institution. While the institution is in focus here, in accordance with critical realist views on structure and agency (Bhaskar, 1998b), I do not suggest that the institution is in itself deterministic, but rather that it can act as a structure that influences agents' actions. However, agents' actions can also influence the structure of the institution (e.g. its uptake of green skills funding and response to the emergence of green economy developments – see Chapter 3). The institution is therefore not 'static' but dynamic, and involves the activity of human agents or actors in the institution.

The chapter starts by descriptively analysing the historical dimensions of the NSF. It also considers enabling conditions like policy sources governing the fund. It reviews the role of the fund with special reference to green skills funding commitments during the National Skills Development Strategy (NSDS) five-year strategic policy event periods namely, NSDS I (2001-2005), NSDS II (2005-2010), NSDS III (2011-2016 extended to 2018). Furthermore, it provides a brief description of emerging impulses anticipating NSDS IV, which is the next policy event period, currently emerging from a two-year extension of the previous NSDS funding period. These five-year strategic policy periods of skills development interventions are key to understanding funding activities of the NSF. The reason for this is that the legislative mandate emanating from the Skills Development Act, Act 97 of 1998 as amended in 2008, places a strategic obligation on the fund to respond mainly to national priorities as per the National Skills Development Strategies which generally run for a five-year period and which are then revised to respond to emerging demands and changes in the socio-political and socio-economic landscape.

Figure 4.1 below provides a graphic overview of the emergence of the NSDS as a leading skills development strategy as well as the NSF's actions, while being mindful of the implications for national green skills funding, referred to in Chapter 3. The timeline model illustrates the emergence of the NSF, the major National Skills Development Strategy policy events, the main green skills policy events and the first green skills funding initiatives. These are described in further detail in the narrative that follows.

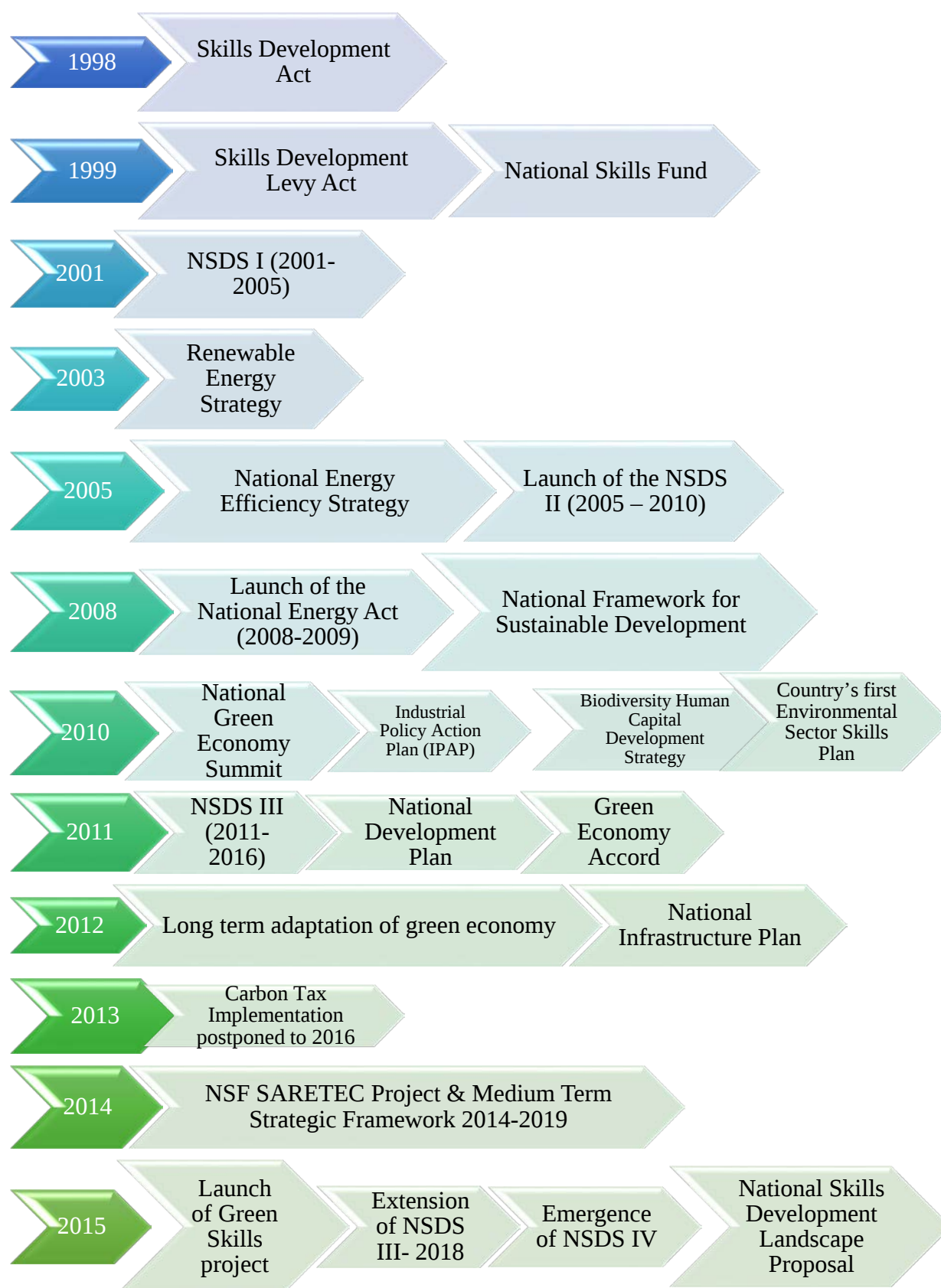


Figure 4.1 Timeline of NSF and green skills (NSF, 2016b)

4.2 Historical policy event mechanism: The emergence of the NSF

The origin of the NSF can be traced back to the establishment of the Training of Unemployed Persons Fund (hereafter referred to as the TUP fund) under the Department of Labour (DoL). The TUP fund endeavoured to provide training for unemployed persons as per Section 36A of the Manpower Training Act, Act 56 of 1981, as amended in 1990. The Director General of the DoL was, in terms of the Act, responsible for the control and administration of the TUP fund. The Directorate: Human Resources Development was responsible to manage the administration of the TUP fund on behalf of the Director General: Labour. According to the Manpower Act, Act 56 of 1981, any unutilised funds in the TUP fund were to be deposited with the Corporation for Public Deposits (South Africa. Department of Labour [DoL], 1996; 1997).

The funds earmarked by Parliament for the TUP fund were allotted to the then DoL provincial offices to supply the training demands in accordance with a targeted profile of beneficiaries. The DoL provincial offices were mandated to enter into long-term and short-term service level agreements with training providers, providing identified training courses. Long-term training providers were required to submit institutional training plans, which were subject to DoL evaluation (provincial office), recommendation through a provincial training plan (provincial office) and endorsement (DoL Head Office) through its Directorate: Human Resource Development (HRD). During May 1996, the DoL had about 15 training centres responsible for long-term contracts. Training providers who received short-term contracts had to apply according to the application specification guidelines in line with the provincial training agreements which were entered into between DoL provincial offices and training providers. The Provincial Director duly signed on behalf of the Department of Labour (South Africa. DoL, 1996; 1998).

Furthermore, in line with the Manpower Act, Act 56 of 1981, the Department of Labour established provincial selection committees to adjudicate all training applications for training contracts. Training boards were established in line with the Manpower Act, Act 56 of 1981 (as amended) to oversee and ensure the quality assurance standards. By March 1998, the DoL had 30 training boards representative of various industry sectors. The selection committee structures made recommendations, based upon the application process, to the Provincial Directors as per allocations relative to provincial skills needs. The composition of the selection

committee structures had to be representative of the various stakeholders in the province, such as industry and community (South Africa. DoL, 1996; 1997; 1998).

Once training agreements were reached, training commenced. It was the responsibility of the DoL provincial offices to capture the training agreement on the TUP computer system, and training advisers from the DoL were responsible for monitoring training interventions. Furthermore, training provider claims were verified and validated by DoL offices and processed for payment through the Directorate: HRD, Head Office for payment (South Africa. DoL, 1996).

Claims were captured by the Directorate: HRD, Head Office and subsequently verified on the TUP computer system, which interfaced with the Basic Accounting System (BAS) which is a financial system administered by the Directorate: Financial Management. This process resulted in the effective disbursement of claims against the Claims Control Account, ideally within three days (South Africa. DoL, 1996).

In terms of the TUP funding source, funds were appropriated by Parliament on the budget of the DoL for the training of the unemployed persons on the Objective: Contribution to the Fund for the Training of Unemployed Persons. Donors and other government departments could also deposit funds into the TUP fund (South Africa. DoL, 1996; 1998).

According to a discussion document for DoL Provincial Directors (South Africa. DoL, 1997, p. 1) entitled ‘The Restructuring of the HRD Unemployment Training Programmes’, a new system was introduced and favourably embraced by most stakeholders. The new system was the result of a number of challenges with the old system, for example: a) a priority need existed to place stronger focus on provider performance and implications for additional funding requirements for improved quality training; b) poor returns on unemployment training programmes (at the root cause of this limitation was the inability to link training with work place opportunities); and c) an ineffective training system and therefore the need for a systems change initiative. Ultimately, the goal was to increase employment opportunities through better work placement strategies. In the DoL documentation, cases were cited such as Chile and New Zealand, where 60% placement rates had been reported (South Africa. DoL, 1997; 1998).

The TUP system’s approach required the DoL to determine proactively the training needs in each province based on standardised needs analyses and the development of training plans. This would ensure the optimal use of information in relation to field work observations about

work opportunities to enhance the quality of evaluations by prospective training providers. A new way of providing training was ushered in. The new TUP system was no longer driven by training provider offerings which in many cases produced training with outdated training equipment and training curricula, supported by the provision of annual funding allocations. The new model emphasised the critical assessment of performance and the impact of training. It became important to centralise training needs through more effective decision-making responses to ensure effective training programme selection and the provision of proper budget management controls. In addition, it became critical to establish performance criteria for the performance of training providers, thereby ensuring the measurement of performance in achieving specified targets. The change to the TUP system produced a new concept, namely that of *performance based contracting* that was meant to ensure and include all DoL internal and external stakeholders on an equal footing (South Africa. DoL, 1997; 2000).

Furthermore, to ensure a greater impact of training interventions, it was noted at the time that the quality of training should be upgraded and that stronger post-training support be implemented. To achieve this objective, the need for additional funding was identified (South Africa. DoL, 1997; 2000).

The following objectives highlighted the new funding approach for the TUP programme (South Africa. DoL, 1997, p 9):

- a) Induce high performance through the competitive disbursement of training funds. The performance based training contract is the vehicle through which this will be achieved;
- b) Support increased access by providers to department training funds through competitive tendering; and
- c) Support longer term training and investments in quality improvement through longer term contracts.

While emphasis was placed upon longer training programmes, the additional funding required by the need for better quality training programmes and the 17% reduction in training budgets would impact negatively on the throughput rate; this however was to be viewed as a balancing act of quality training over the quantity of trainees (South Africa. DoL, 1997; 2000).

These important changes within the then training landscape paved the way for the development and implementation of the Skills Development Act, Act 97 of 1998. As a result, the NSF was established on 2 February 1999 and a transitional arrangement required the transfer of all funds

from the TUP fund to the NSF. By implication, the training of unemployed persons was plotted through one of the NSF's new funding windows, namely Skills Programmes, which later become known as the Social Development Funding Window (South Africa. DoL, 1998; 2000).

4.2.1 Reflection pointer 1: Implications for national green skills funding

The story of the NSF has a number of lessons that are potentially useful for thinking about the NSF's responsiveness to green skills funding. The first lesson that should be learned from the above discourse, with specific reference to green skills funding, is that any meaningful green skills funding initiatives must place a strong focus on the performance of skills training providers relative to strategic funding expectations. The TUP fund was set up to support and strengthen stakeholder engagement through meaningful performance-based contracting mechanisms, sound quality assurance and stronger workplace alignment. National green skills funding will be fruitless without the involvement and support of green skills partnerships. Note the following quote by respondent 12 with regard to the NSF role as an important mechanism of stakeholder engagement:

The absence of the NSF at key and strategic engagement such as the SIPS meetings on a national provincial level is alarming. Hence, the presence of the NSF as a key funding mechanism at these engagements emerge as very important. The NSF's role should be valued as an education specialist, trying to be proactive, fully participative and collaborative.

Currently, no credible mechanism exists nationally for the identification of green skills training providers. The Eastern Cape Green Skills Forum has started a process of mapping green skills initiatives across the Eastern Cape, indicating the relevant providers in terms of green skills activities, projects and programmes (NESPF, 2014). In relation to this, Respondent 3 emphasised the demand for effective skills development partnerships: *"We need strong partners. It is difficult to drive all these initiatives alone. We depend on third parties who are strong. If you have a concept, you can talk to us."* Respondent 9 also commented in respect of the NSF's skills planning imperative in response to the challenge of national green skills funding, noting their reliance on partners for skills intelligence information and thus also prioritising of how the NSF should allocated resources:

When we engage with the Department of Energy, which talks to nuclear for example, to establish whether there are specific skills required ... It's not our responsibility to tell them. We work with the rest of government to see how we can support government initiatives.

The second lesson pertains to the new system's approach signalled by the TUP fund's season of existence. The new system's approach demanded that the training needs of providers be

proactively and provincially identified based upon a standardised needs analysis, from which training plans were informed accordingly and translated into optimal workplace opportunities. Obviously, the TUP systems approach was designed to place skills providers at the centre of the skills development enterprise. However, in relation to this, Respondent 11 raised the importance of awareness as a key dimension influencing the funding mechanism: *“Providers (skills training) become inoperative due to a lack of awareness”*.

This particular approach paved the way for standardised national green skills planning with a strong focus on the identification of skills needs from the bottom up (provincially) which is incentive based and stakeholder driven. For the internalisation of both lessons to happen, a good grasp of the NSF’s enabling conditions emerges as important.

In agreement with Respondent 11, Respondent 12 made the following statement flagging the NSF’s grant-making responsibility to build strong stakeholder engagements with training providers effectively:

The NSF’s grant management system displays a strong reliance on training providers. It is expected of provincial training providers to conceptualise their own project needs in relation to contextual skills conditions. Hence the articulation of project proposals becomes of strategic significance.

Also, Respondent 11 made an inference with regard to green skills as an implementation challenge: *“very few providers can supply sustainable services”*. Hence, the following discussion on enabling conditions might provide greater insight into the NSF’s ability to learn from organisational experience (or not).

4.3 Enabling policy event mechanisms: Governance responsiveness

Figure 4.2 below describes the major policy events impacting the NSF’s governance responsiveness. It also provides a backdrop to the subsequent discussions on the NSF’s governance responsiveness.

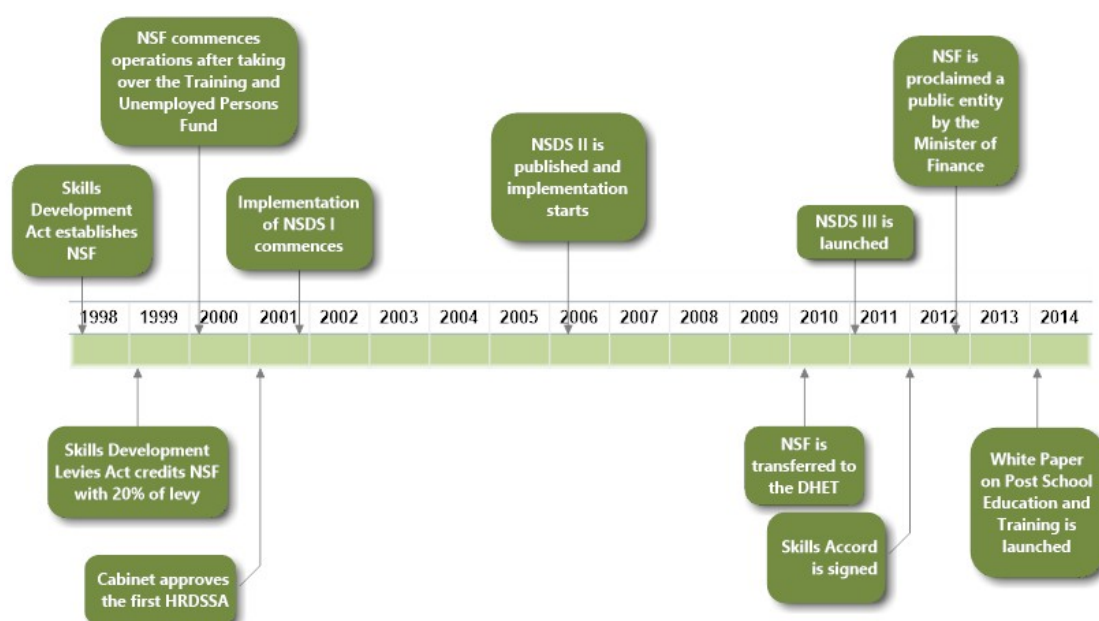


Figure 4.2 Major policy event timeline influencing NSF governance responsiveness (DNA Economics, 2014)

4.3.1 Introduction to the wider governance and legislative context

The Organisation for Economic Cooperation and Development (OECD) Report (2014) stated that, in South Africa, the mandatory Skills Development Levy (SDL), as governed by the Skills Development Levy Act (SDLA), Act 9 of 1999 (South Africa, 1999a), provides for the imposition of a skills development levy and matters relevant thereto. According to the SDLA (South Africa, 1999a), all employers are required by law to surrender 1% of their wage bill to fund training and development. Of this levy, the NSF receives an allocation of 20%, and the Sector Education and Training Authorities (SETAs) together receive 80%. The NSF receives a stable income of approximately ZAR 2.8 billion annually, with an expected increase rate of 10% per annum (NSF Annual Financial Statement 2012/13). The South African Revenue Services (SARS) plays the role of collection agent. Defaulting employers in respect of the SDLA are liable to penalties and/or additional interest.

According to the NSF's Strategic Framework for Grant Allocation (NSF, 2013a, p. 8), the primary objectives of the NSF remained unaffected when amendments to the Skills Development Act (Act 37 of 2008) were made except to address the accountability structure of the fund by designating the Director General of Higher Education and Training as the accounting authority. Therefore, the Minister is the executive authority of the NSF. The Director General of DHET has the responsibility to:

- (a) control the fund;
- (b) keep a proper record of all financial transactions, assets and liabilities of the fund;
- (c) prepare annual financial statements for the fund on the prescribed form; and
- (d) subject to the laws governing the public service, appoint the executive officer of the fund who will, upon such appointment, be in the employ of the public service. (NSF, 2013a, p. 8).

Furthermore, The NSF is a product of law, which was established by the Skills Development Act (SDA), Act 97 of 1998. The SDA does not state exactly what the purpose of the fund ought to be apart from:

- a) projects identified in the NSDS as national priorities (section 28(1) of the SDA of 1998);
- b) projects in support of the Skills Development Act (1998a) as the Director General (DG) determines (section 28(1) of the SDA); and
- c) any activity undertaken by the Minister to achieve a national standard of good practice in skills development (section 30B of the SDA).

Correspondingly, Notice No. R.1030, Government Gazette No. 33740 of 8 November 2010, the Director General as the accounting authority of the NSF and in terms of Section 29 of the SDA, is also responsible to administer the fund within the prescribed limit (section 28(3) of the SDA). Furthermore, regulation 2(4)(e) of the regulations to prescribe the limit regarding the cost to administer the National Skills Fund states that the NSF may use a maximum of 10% of its annual revenue towards administration of the fund.

The NSF Strategic Framework for the allocation of funds (NSF, 2013a) further stated that according to the Director General's delegation of authority, the day-to-day operations of the NSF are managed by the Chief Director/Executive Officer: National Skills Fund. The National Skills Fund forms part of the Programme of the Skills Development Branch of the Department of Higher Education and Training and is accountable through the structures and processes of the Department insofar as compliance with the Public Finance Management Act (PFMA), Act 1 of 1999, (PFMA) and other legislation is concerned.

Rendering to section 49(2) (b) of the PFMA, this form of governance is allowed. In the case where a public entity does not have a board or an oversight body, a chief executive officer may take charge unless specific legislation provides for an alternative designated accounting officer.

In the NSF's case, specific legislation, namely section 29 of the SDA, designates the Director General of DHET as the accounting authority of the NSF.

4.3.2 Reflection pointer 2: Implications for national funding of green skills

The NSF Strategic Framework for the Allocation of Funds, based on the fund's legislative mandate cites that the NSF contributes to its strategic objectives in accordance with key government strategies such as the National Skills Accord, the Industrial Policy Action Plan (IPAP) (2014/15-2016/17), the New Growth Path and the Human Resource Development Strategy of South Africa (2010-2030). Furthermore, the NSF's Strategic Framework for the Allocation of Funds cites green skills for a green economy as a national priority contributing to the strategic objectives embodied in the National Development Plan (NDP) 2030, the Medium Term Strategic Framework (MTSF) and the National Skills Development Strategy (III).

4.3.3 Key funding policy event mechanisms in relation the NSF's legislative responsiveness

According to the NSF Business Case (NSF, 2016a) and the NSF (2016b) Strategic Plan 2016/17-2020/21, the fund's embodiment is derived from the following key pieces of legislation:

- a) the Skills Development Act, Act 97 of 1998, as amended;
- b) the Skills Development Levies Act, Act 9 of 1999, as amended;
- c) the Public Finance Management Act, Act 1 of 1999, as amended and Treasury Regulations; and
- d) the Public Service Act, Act 38 of 1994, as amended.

Section 28 of the SDA ensures that the NSF fulfils its strategic mandate collecting funds from the following funding sources:

- a) 20% of the skills development levies as contemplated in the Skills Development Levies Act, Act 9 of 1999; and
- b) Interest earned on investments held at the Public Investment Corporation.

The NSF may also receive funds from the following sources:

- a) the skills development levies collected and transferred to the fund, in terms of the Skills Development Levies Act, Act 9 of 1999, in respect of those employers or sectors for which there are no SETAs;
- b) money appropriated by Parliament for the fund;

- c) donations to the fund; and
- d) money received from any other source (NSF, 2015b; South Africa, 1998a).

In the light of the retention of accumulated surplus, in terms of section 29(3) of the SDA, the unexpended balance in the NSF at the end of each financial year must be carried forward to the next financial year as a credit to the fund (NSF, 2015b; South Africa, 1998a).

Correspondingly, Government Gazette 35940 Notice No. 990, published by the Minister of Higher Education and Training on 3 December 2012, placed new SETA grant regulations in place. The regulations made provision for any remaining surplus of the uncommitted discretionary SETA funds to be paid over by 1 October of each year into the NSF coffers (NSF, 2015b; South Africa, 2012b).

Obviously, the implication of the above is that the income of the National Skills Fund would be meaningfully increased. The greatest impact in this regard was experienced during the first financial year in which the grant regulations came into effect, namely 2013/14. It was envisaged that this control measure would ensure that additional income from the SETAs would gradually decrease going forward. It was hoped that this would result in an improved and financially more efficient condition where SETAs would adapt to the new grant regulations (NSF, 2015a).

4.4 Strategic policy mechanisms informing the NSF's funding responsiveness

4.4.1 Listing event 2012: emergence of the NSF as a Public Schedule 3A Entity

According to the NSF Annual Report (2014), the Minister of Finance listed the NSF as Schedule 3A Public Entity on 12 October 2012, in accordance with the Public Finance Management Act. The listing was effective retrospectively from 1 April 2012, as per notice number 821 in Government Gazette No 35759. It was only up to this point that the NSF was operated as a Chief Directorate programme within the Skills Development Branch of the Department of Higher Education and Training. According to the NSF Business Case (NSF, 2016a), the fact that the NSF has been listed as a Schedule 3A public entity does not imply that the NSF has been established as a juristic person. The listing event should therefore be seen as a way of adhering to a specific PFMA compliance framework, and not necessarily as the establishment of the NSF as a juristic persona. The Schedule 3A public entity compliance framework becomes a fundamental platform from which the new NSF operating model and proposed organisational edifice emerges.

4.4.2 Event mechanism: Funding policy source 1 – the National Development Plan 2030 (NDP)

The NSF (2016b) Strategic Plan (2016/17-2020/21) claimed that all South African government strategies ought to be informed by the National Development Plan (NDP) 2030. This is an important strategic document of government pointing towards the elimination of poverty and reduction of inequality. The NSF (2016b) Strategic Plan (2016/17-2020/21) attempted to incorporate the objectives of the National Development Plan under its funding programme 1, namely: “To fund national skills development priorities”.

Training for start-ups and emerging businesses, rural development, adult basic education and training and community development should be supported by money from the National Skills Fund and managed by relevant departments or agencies, such as Small Enterprise Development Agency, Kha Ri Gude and the National Youth Development Agency. This would enable the National Skills Fund to focus on large skills development programmes that form part of a broader programme. This would simplify the grant funding mechanism by supporting fewer, but larger programmes (NDP, 2013, p. 286).

4.4.3 Event mechanism: Funding policy source 2 – the National Skills Development Strategy III (2011 as extended to 2018)

The Department of Higher Education and Training is responsible for Outcome 5 of government’s 12 performance outcomes; namely: *A skilled and capable workforce to support an inclusive growth path*. This responsibility is part of the Minister of DHET’s performance agreement with the President of South Africa. In order to ensure improved effectiveness and efficiency in the skills development system, NSDS III was crafted as an implementation framework to deliver on Outcome 5.

The NSDS III (2011 as extended to 2018, p. 34) spelled out some of the key responsibilities of the National Skills Fund, hereby identifying the following important national funding priorities:

- a) Priorities that will lead to the advancement of the Human Resource Development Strategy, decided upon in consultation with the Human Resource Development Council;
- b) Ministerial priorities after due consultation with the National Skills Authority (NSA) and other strategic partners;

- c) Priority projects of government which are aligned to the National Skills Development Strategy and in support of the new economic growth path, the Industrial Policy Action Plan, rural development, *skills to support the green economy* and skills development in education and health, and that contribute towards capacity building and skills development for institutions dedicated to the fight against crime and corruption (my emphasis).

4.4.4 Event mechanism: Funding policy source 3 – Medium Term Strategic Framework

The Medium Term Strategic Framework (MTSF) was adopted by the South African government in 2009, for the period 2009/10 to 2014/15. Strategic priority 4 of the MTSF makes provision for the capacitation of the human resource base to strengthen the area of responsibility of the DHET and its entities in relation to the government's 12 performance outcomes. The MTSF for the period 2014-2019 includes the 12 outcomes of the 2009-2014 period, as well as two new outcomes (social protection, nation-building and social cohesion) (see Appendix C for the list of 14 MTSF outcomes, and for the full framing of Outcome 5). Specifically, the MTSF provides for the DHET to assume responsibility for the development of a skilled and capable workforce to support an inclusive growth path in the country via Outcome 5. Table 4.1 below describes the NSF's commitment in agreement with Outcome 5.

Table 4.1 Medium Term Strategic Framework (NSF Strategic Plan, 2015a/16)

OUTPUT	DESCRIPTION
Output 1:	Establish a credible institutional mechanism for skills planning, which includes the provision of information with regard to the demand and supply of skills, as well as a career guidance system for the country.
Output 2:	Increase access to programmes leading to intermediate and high level learning, including the raising of skill levels of both youth and adults to access training.
Output 3:	Increase access to occupationally-directed programmes in needed areas and thereby expanding the availability of intermediate level skills, with a special focus on artisan skills and other mid-level skills.
Output 4:	Increase access to high level occupationally-directed programmes in needed areas such as engineering, health sciences, natural and physical sciences, as well as increasing the graduate output of teachers.
Output 5:	Increase research, development and innovation in human capital for a growing knowledge economy, with a particular focus on post-graduate degrees, deepening industry and university partnerships, as well as increased investment into research development and innovation, especially in the areas of science, engineering and technology.

The NSF (2016b) Strategic Plan 2016/17-2020/21 and NSF Business Case (NSF, 2016a) noted that the NSF is expected to play the role of ‘catalytic’ fund, empowering strategic government strategies, fulfilling the expectations of the unemployed and other community-based organisations, especially those that find themselves at the margin of society, like cooperatives. Part of the NSF’s mandate is to drive partnerships toward change, redress and promoting equity. The fund is seen as a national resource. As a resource it should initiate skills development projects as well as respond to national skills priorities and expectations. The NSF ought to fill skills gaps and supplement deficiencies.

4.4.5 Event mechanism: Funding policy source 4 – White Paper for Post-School Education and Training (2013)

As noted in section 4.4.3, in 2013 the government of South Africa, via the newly formed Department of Higher Education and Training, released a White Paper to guide the post-school education and training system development. The following extract illustrates the significance that the White Paper for Post-School Education and Training (DHET, 2013a) placed upon the strategic role of the NSF in terms of supporting the post-schooling sector from an integration point of view.

The roles of the Sector Education and Training Authorities (SETAs) and the NSF will be simplified and clarified, and their capacity built in line with their core functions. The NSF will be responsible for skills development aligned to national development strategies and priorities, including building linkages within the skills system and providing funds for government strategies such as youth programmes, building small businesses and cooperatives, and rural development. It will also fund research and innovation that is not confined to a particular sector (DHET, 2013a, p. 117).

The NSF Business Case (NSF, 2016a) described the vision for the post-school education and training (PSET) system as embodied in the White Paper (DHET, 2013a), namely an expanded, effective and integrated PSET, was essentially considered to be a key factor in the process of developing new operating model and organisational design for the NSF.

The White Paper (DHET, 2013a) and the NSF Business Case (2016a) both alluded to the importance of the role of the NSF in relation to other post-school education and training role players such as technical and vocational education and training colleges, especially in terms of how the NSF is to relate to these. The NSF’s catalytic and integrated role is also supported by

the new SETA landscape proposals. These indications confirm that the NSF is strategically positioned to achieve optimal integration and significantly contribute towards the expansion and integration of the PSET sector.

The White Paper for Post-School Education and Training (DHET, 2013a) described the role of the NSF as that of a strategic funder with the following important expectations:

- a) **Generalist and catalytic role:** The NSF should continue supporting skills development training in line with national development strategies and priorities. This commitment may not necessarily be aligned to sectoral priorities. It is expected of the fund to remain a source of funds for wider government strategies such as youth programmes, building small businesses and cooperatives, and rural development. National government departments and agencies should seriously consider partnering with the NSF to advance the skills development agenda. This includes, for example, Department of Trade and Industry support for small businesses, the Expanded Public Works Programme, and various community economic and social development initiatives (DHET, 2013a);
- b) **Capacity building:** The public education system appears to be under severe pressure to fulfil the associated expectations and demands. In this regard, it is expected of the NSF to provide the much-needed capacity building support. The strategic capacity building support emanating from DHET as the custodian of the post-schooling system becomes of paramount importance. Henceforth, it is expected of the NSF to continue to be an important source of funding to enable the linkages between the skills system and the other post-schooling sub-systems (DHET, 2013a);
- c) **Non-governmental organisation support:** It is also expected of the NSF to continue supporting non-formal adult basic education through support to public agencies, NGOs and non-profit organisations effectively delivering in the area of skills development and especially those assisting people with disabilities (DHET, 2013a).
- d) **Research and innovation:** The NSF is likely to support research and innovation to ensure that skills development contributes more effectively and efficiently toward beneficiation (DHET, 2013a).

4.4.5 Event mechanism: Funding policy source 5 – Human Resource Development Strategy of South Africa II (2010-2030)

The NSF's Strategic Framework for the Allocation of Funds also responds to the Human Resource Development Strategy of South Africa (HRDSSA) II (2010-2030). This is a long-term overarching strategy that is geared towards driving human development in the country. Priorities originating from this strategy are supported by the funding strategy of the NSF. There are eight strategic commitments emanating from this strategy which cover the full spectrum of basic and higher education and training within the post-school education and training arena. Commitment 8, for example, states that the strategy will cater for the provision of planning capabilities to ensure the effective implementation of HRDSSA.

The NSF (2016b) Strategic Plan 2016/17-2020/21 and the associated White Paper for Post-School Education and Training (DHET, 2013a) assumed that the DHET's goal is for the National Skills Fund to operate with the highest standards of efficiency and effectiveness, with high levels of client satisfaction, making use of its resources strategically according to national priorities, and that it will be informed by major policy sourced as aforementioned to ensure maximum impact on the provision of skills development in the country.

4.4.6 Reflection pointer 3: Implications for national funding of green skills

The centralisation of key national policy documents like the NDP in the NSF funding policy formulation process has important implications for national green skills funding in the country. As already alluded to in Chapter 3, an example thereof is the NSF's response through the SARETEC project at the Cape Peninsula University of Technology (CPUT). This facility is a key piece of public infrastructure in the production of green skills for the green economy. This mechanism attempts to respond to South Africa's renewable energy production demands, for example, supplementing the current fossil fuel energy production and in this way reducing the carbon footprint (DHET, 2015a).

The NSF is also becoming more responsive to the country's national research requirements via the DHET and its strategic role in contributing to the national research demands, for example in areas such as skills planning and labour market intelligence (NSF, 2016a). The findings of these research projects under the leadership of the Human Resources Development Council's (HRDC) task teams inform national policy formulations that determine the emergence of important policy events such as the dawning of the National Skills Development Strategies

NSDS (I-III). A closer look at each of the National Skills Development Strategy periods (I-III) as key policy events is therefore important for the discussion further.

4.5 National Skills Development Strategies as strategic policy events influencing the NSF and its mandate

As shown in Figure 4.1 above, and as introduced in Chapter 1, South Africa has seen three National Skills Development Strategies since 2001. Over time, these have become more responsive to green skills (as reported in Chapter 3), and all have influenced the NSF and its mandate substantively. Each of these is discussed below to provide descriptive insight into this policy instrument as it relates to the NSF and its role and mandate in the South African skills development system.

4.5.1 Strategic funding policy event 1: The emergence of National Skills Development Strategy I (2001-2005)

The NSF Expenditure Performance Review Report (NSF, 2014a) cites that the National Skills Development Strategy I (NSDS I) was released in 2001 (South Africa, DoL, 2001). In line with the Skills Development Act (SDA), Act 97 of 1998 (South Africa, 1998a), it is oriented towards implementation of the mandate of the Human Resource Development Strategy of South Africa (HRDSSA). The mandate of the HRDSSA and the work of the NSF are inseparably linked to the SDA, which sets the policy mandate of the NSDS over five-year periods. NSDS I was embarked upon during April 2001, mainly by the NSF, SETAs and all other skills development stakeholders. The NSDS I attempted to rectify the structural deficiencies within the labour market by developing new skills, upgrading existing skills and reskilling labour to meet the demands of a growing economy. The following comment by Kraak (2008a, p. 1) emphasised the transformational imperative driving the heart of the introduction of NSDS I, namely:

Enterprise training in South Africa has undergone dramatic changes in the past decade. An entirely new training regime has been introduced, aimed primarily at upskilling those black South Africans previously excluded from education and training opportunities under Apartheid. The Skills Development Act 1998 has been the primary legislative instrument used to introduce the new system. At the heart rests a new institutional architecture comprising 23 Sector Education and Training Authorities (SETAs) (Kraak (2008a, p. 1).

The NSDS I 2001-2005 introduced the following vision namely, *Skills for Productive Citizenship for All*. This vision had five main objectives and 12 indicators. The objectives were:

a) to develop a culture of high quality lifelong learning; b) to foster skills development in the formal economy for productivity and employability; c) to stimulate and support skills development in small businesses; d) to promote skills development for employability and sustainable livelihoods through social development initiatives; and e) to assist new entrants into employment.

The NSDS had equity objectives where the beneficiaries of the strategy should be 85% Black, 54% female and 4% people with disabilities (South Africa. DoL, 2004, p. 5).

The NSF's funding response culminated in a framework of eight funding windows, strategically aimed to assist in the disbursement of funds. Table 4.2 below provides a summary of allocations to each window for the 2003/04 period as well as the total allocation from the inception of the NSDS I period (2001). Although these were merely the first footprints of a 'baby giant', these statistics provide some sense of what the NSF's business agenda looked like during this period. Each of the funding windows introduced in Table 4.2 are discussed further beneath the table.

Table 4.2 Summary of NSF funding window allocations (South Africa. DoL, 2004)

Funding window	2003/04 Budget	Expenditure by March 2004
1. Social Development Initiatives	ZAR 272 million	ZAR 239,7 million
2. Strategic Projects	ZAR 615, 5 million	ZAR 285 million
3. Learnership Funding ³	ZAR 300 million	ZAR 0
4. Skills Support Programme	ZAR 45 million	ZAR 15,8 million
5. Bursaries	ZAR 65.6 million	ZAR 65,6 million
6. Innovation and Research	ZAR 17 million	ZAR 2 million
7. Capacity Building	ZAR 10 million	ZAR 600 000
8. Promotion of the NSDS	ZAR 39 million	ZAR 11,3 million

³ Slow adjudication process of the first learnership programme roll-out (NSF, 2004).

- ***Funding window event 1: Social Development***

The aim of this funding programme was to provide for the training of unemployed or under-employed persons to equip beneficiaries with working skills to facilitate their entry into self-employment or the labour market. This funding window functioned through the Department of Labour's (DoL) provincial offices. Project funds were mainly disbursed through DoL provincial offices. The NSF, in close collaboration with DoL provincial offices, established a training delivery model based on the evaluation of social development training applications against a set of project-based criteria. The said criteria included considerations around whether the proposed project was part of the Provincial Skills Plan, the Integrated Rural Development Strategy, the Urban Renewal Strategy, or the Local Economic Development Strategy, and whether the beneficiaries would be placed in such projects once training was complete (South Africa. DoL, 2004).

- ***Funding window event 2: Strategic Projects***

The main purpose of the Strategic Projects funding window was aimed at supporting projects that focused on the implementation and achievement of government's priority growth and development strategies. SETAs were mainly used as disbursing agents in the case of this window (see Appendix D for a full list of the SETAs). Allocations from NSF to SETAs were determined by strategic sector-based preferences where training was anticipated in support of sectoral growth strategies with special reference the following funding areas: a) Development and piloting of skills programmes and learnerships; b) Education, training and development – practitioner development; c) Small business development; d) Strategic occupations; and e) Education skills (including adult basic education and training) (South Africa. DoL, 2004).

- ***Funding window event 3: Learnerships***

The objective of this funding window of the NSF was to support the implementation of learnerships for unemployed learners, and via this means, to contribute towards achieving the targets of the Growth and Development Summit of June 2003. Learnership programmes were established in terms of the Skills Development Act, Act 97 of 1998 and are programmes that combine institutionalised and workplace learning, culminating in nationally recognised qualifications (South Africa. DoL, 2004).

- ***Funding window event 4: Skills Support Programme***

The Skills Support Programme (SSP) was directly linked to the Department of Trade and Industry's Small and Medium Enterprise Development Programme (SMEDP) and Strategic Industrial Programme (SIP), which were designed to encourage new investments and major expansions. The SSP consisted of three funding elements namely: a) a training grant, b) a development grant; and c) a capital grant (South Africa. DoL, 2004).

- ***Funding window event 5: Bursaries (scarce skills)***

One of the priority areas identified in government's Human Resource Development Strategy (HRDSSA) was to address the matter of scarce skills. The bursary funding window was established to support the achievement of the targets as determined in the HRDS through the allocation of bursaries (undergraduate and postgraduate) based upon identified domains of scarce skills. The DoL established agreements with the National Student Financial Aid Scheme (NSFAS) and the National Research Foundation (NRF) to administer the funding of bursaries for undergraduates and postgraduates (South Africa. DoL, 2004).

- ***Funding window event 6: Innovation and Research***

The main objectives of this funding window programme were to fund projects that would: a) generate new or improved knowledge about skills development through research; b) enhance innovation especially in relation to the implementation of the National Skills Development Strategy, the Skills Development Act, Act 97 of 1998 and the Skills Development Levies Act, Act 9 of 1999; c) advance and distribute career/labour market information to learners, providers and other users; and d) provide support to skills development policy and implementation strategies (South Africa. DoL, 2004; South Africa, 1998a).

- ***Funding window event 7: Capacity-building of stakeholders***

The goal of the fund window for capacity-building initiatives was to provide funding support to the various stakeholders in the area of skills development for the successful implementation of the National Skills Development Strategy. Some of the beneficiaries on which this funding window was focused were: a) SETA boards (including staff), organised labour, organised business, education and training providers and designated groups, for example the Disabled People South Africa (DPSA) and the South African Youth Council (SAYCO) (NSF, 2004).

- ***Funding window event 8: Promotion of the NSDS***

This window was set up to deal *inter alia* with the communication, marketing and advocacy of the objectives of the NSDS, for example printing of NSDS-related promotional material and publications, marketing of projects funded by the NSF and the hosting of the annual skills conferences (South Africa. DoL, 2004).

The NSF annual report (NSF, 2005) claimed that the fund's projects covered the full spectrum of the NSDS I (2001-2005) objectives. It seems that a strong emphasis was placed on provision of learnerships by SETAs and the NSF for what was known as '18.2' (unemployed) learners as a key training mechanism to bridge the gap between training and workplace experience. The 18.2 learnerships projects were funded mainly through the National Skills Fund in support of the Growth and Development Summit of 2002 (South Africa. DoL, 2004). According to Kraak (2008a) the strong focus was placed on learnerships to redress the challenges related mainly to supply-side dominated provision. He lamented, however, the unfortunate neglect of what was termed '18.1' (employed learners) at the expense of '18.2' (unemployed learners).

The broad goals and agreements reached by social partners at the Growth and Development Summit of 2003 aimed to accelerate the uptake of learnerships for unemployed people. The projects were, however, slow to start (refer to footnote 6 regarding late approval), which also explains the zero expenditure rate by March 2004, as mentioned in Table 4.2. The financial year 2004/05 commenced with a solid budget of ZAR 700 million. This budget included a special allocation of ZAR 90 million to support a pilot project for Employment and Skills Development Lead Employers (ESDLE). Despite the slow start, in 2005 the NSF reported the following achievements, namely that a) a total of ZAR 600 million had been allocated to projects implemented by both SETAs and ESDLEs; b) a total of 10 SETAs and 11 ESDLE were implementing projects covering a wide variety of learnerships across sectors; and c) the total approved projects would allow 23 000 learners to obtain nationally recognised learnership qualifications (NSF, 2005).

In his evaluation of the impact of the first phase of the NSDS, Kraak (2008a) challenged the optimistic successes claimed because of the lack of credibility relating to NSDS I performance information data. Each key challenge is briefly considered below, because of the important implications of these for the NSF. The insights are extremely important for this study because

they point toward the foundational challenges and difficulties experienced by the NSF and their anticipated future solutions. These are:

- a) **Lack of political will to embrace a more integrated approach to education and training post-1994:** On the one hand, the South African government made a policy commitment to an integrated and comprehensive post-apartheid education and training system; for example, the African National Congress (ANC) proposed a ‘unified, multi-path model’ (Bird & Eliot, 1993 in Kraak (2008a, p. 11). This policy framework was enabled through the enactment of number of key policy legislation measures, for example the South African Schools Act 84 of 1996, the South African Qualifications Authority Act, Act 58 of 1995 and the Skills Development Act, Act 97 of 1998. On the other hand, the realisation of such an approach was countered by a number of factors such as lack of adequate capacity, presence of doubt within the leadership ranks of the ANC and the negative impact of some of the new features introduced to correct the historical imbalances associated with the legacy of apartheid (South Africa, 1998a)
- b) **SETA governance and challenges pertaining to financial mismanagement, fraud and risk:** The SETA institutional landscape was extremely complex due to the large number of parties; for example, there were 12 National Standards Bodies (NSBs) and more than 100 Standards Generating Bodies (SGBs) dealing with different things in the same domain, but without proper coordination. Also, the lack of strategic leadership from the newly-appointed stakeholders representing labour and business created confusion and resulted in highly questionable corporate governance practices (Grawitzky, 2006 cited by Kraak, 2008a).
- c) **Operational issues regarding the implementation of NSDS:** The NSDS was essentially based upon performance indicators – which unfortunately resulted in an obsession with number chasing, while other important areas were neglected. Grawitzky (2006, cited by Kraak, 2008a) pointed out, for example, that the mechanisms appropriated to measure SETA performance were set up mainly to report against national targets at the expense of sectoral performance needs and expectations. The drive to account and report quantitatively impoverished the training system through lack of regard for the measurement of quality, monitoring evaluation and impact assessment practices.

The National Skills Authority's (NSA) report on the implementation of the NSDS I (Department of Labour, 2006) described some of the successes as the expansion of middle level occupations and growth in the employment of agricultural and fisheries workers. However, the Department of Labour (2006) report on the implementation of the NSDS I also mentioned the following data-related shortcomings, namely: a) that data provided by some of the SETAs could not be verified and the probability is high that the performance results could be highly questionable; b) that tracking of learners in respect of employment status could not be assured; and c) that lessons learned have shown that an information system is required and should be available for all stakeholders to access. These data challenges also plagued the NSF's operating environment. The following extract from an NSF annual report (NSF, 2005, p. 8) confirms the issue of data challenges as follows: "Development of a NSF Management Information System (MIS) is to enhance businesses processes/information flow processes" (NSF, 2005).

These limitations seemingly continued with the commencement of the NSDS II and in fact continued to constrain the skills system as they require time and massive coordination to resolve. It is only since the dawn of NSDS III that the skills system has begun to show some commitment in effectively responding to these challenges raised by Kraak in 2008. However, further reflection on the NSDS II period is necessary before the NSDS III is approached.

4.5.2 Strategic funding policy event 2: Emergence of National Skills Development Strategy II (2005-2010)

The main objectives of the NSDS II, introduced under the banner of 'Skills for sustainable growth, development and equity', were not dissimilar to those of the NSDS I. They included: a) prioritising and communicating critical skills for sustainable growth, development and equity; b) promoting and accelerating quality training for all in the workplace; c) promoting employability and sustainable livelihoods through skills development; d) assisting designated groups, including new entrants to participate in accredited work, integrated learning and work-based programmes to acquire critical skills to enter the labour market and self-employment; and e) improving the quality and relevance of provision (South Africa, DoL, 2005, p. 2).

The NSF and the SETAs were the main implementing agents of the NSDS II, but were supported by other organisations linked to the Department of Labour. These were the Institute for the National Development of Learnerships, Employment Skills and Labour Assessment (INDLELA), the National Productivity Institute (NPI), and the Umsobomvu Youth Fund (UYF) (Department of Labour, 2005).

In a similar manner to its predecessor, the NSDS II emphasised equity, quality training and skills development in the workplace. The strategy also acknowledged the need to aid designated and vulnerable groups to gain knowledge and experience in a workplace environment in order to acquire critical skills (Squire, 2011).

In meeting the objectives of the NSDS II, the NSF's funding was spread across seven funding windows (NSF, 2011):

- a) **NSF funding event 1: an Adult Basic Education and Training (ABET) funding window event** funded training programmes aimed at improving adult literacy and numeracy. The NSF used a combination of public further education and training institutions (FETs) and private training providers to deliver this type of training.
- b) **NSF funding event 2: a Critical Skills Support Programme funding window** financed learnerships and artisan training programmes and augmented the bursary funding of the National Research Foundation (NRF), National Student Financial Aid Scheme (NSFAS) and Career Wise. Much of the funding for learnerships and artisan training was directed towards FET colleges.
- c) **NSF funding event 3: an Industry Support Programme funding window** funded work readiness programmes. These programmes were employer-led, government-funded initiatives designed to address the skills gap by recruiting and training unemployed youth and placing them in employment positions within the formal sector.
- d) **NSF funding event 4: an Informal Sector funding window** included a variety of training interventions designed to improve the sustainability of cooperatives and community-based organisations.
- e) **NSF funding event 5: a Discretionary and Innovation funding window** directed funds towards research and institutional capacity building projects that supported skills development.
- f) **NSF funding event 6: a Strategic Projects funding window** funded largely national and provincial government departments and agencies for sector-specific training.
- g) **NSF funding event 7: a Community Capacity Building funding window** supported the development of institutional capacity in key advisory institutions, non-governmental organisations and civil society. (South Africa, DoL, 2005)

4.5.3 Strategic policy event 3: Emergence of the NSDS III event 2011-2016 as extended to 2018

The NSDS III specifically identifies national priorities that are to take precedence in the NSF. These are: a) priorities that advance the Human Resource Development Strategy; b) priorities identified by the Minister after consultation with the National Skills Authority (NSA), and that support the NSA in its advisory work and in building the capacity of the social partners; c) projects are aligned with the National Skills Development Strategy and support: i) the New Growth Path; ii) the Industrial Policy Action Plan; iii) rural development; iv) *the green economy* (my emphasis); v) education and health sector skills development; and vi) capacity building and skills development for institutions dedicated to the fight against crime and corruption. Note that this is the first time that skills for the green economy are explicitly stated as a national priority in the series of NSDS policies.

4.6. The emergence of the Department of Higher Education and Training (DHET) and the White Paper for Post-School Education and Training

As indicated above, the establishment of the DHET had far-reaching implications for the NSF, many of which are still being worked out. Figure 4.3 and Figure 4.4 indicate the NSF revenue versus investment rate and the NSF's Surplus Decline (below), taken from the NSF Business Case (2016a). This graphically demonstrates the NSF's multi-billion-rand revenue versus a phenomenal skills development disbursement rate of 386% overall funding increase since the NSF was transferred from the Department of Labour to the DHET.

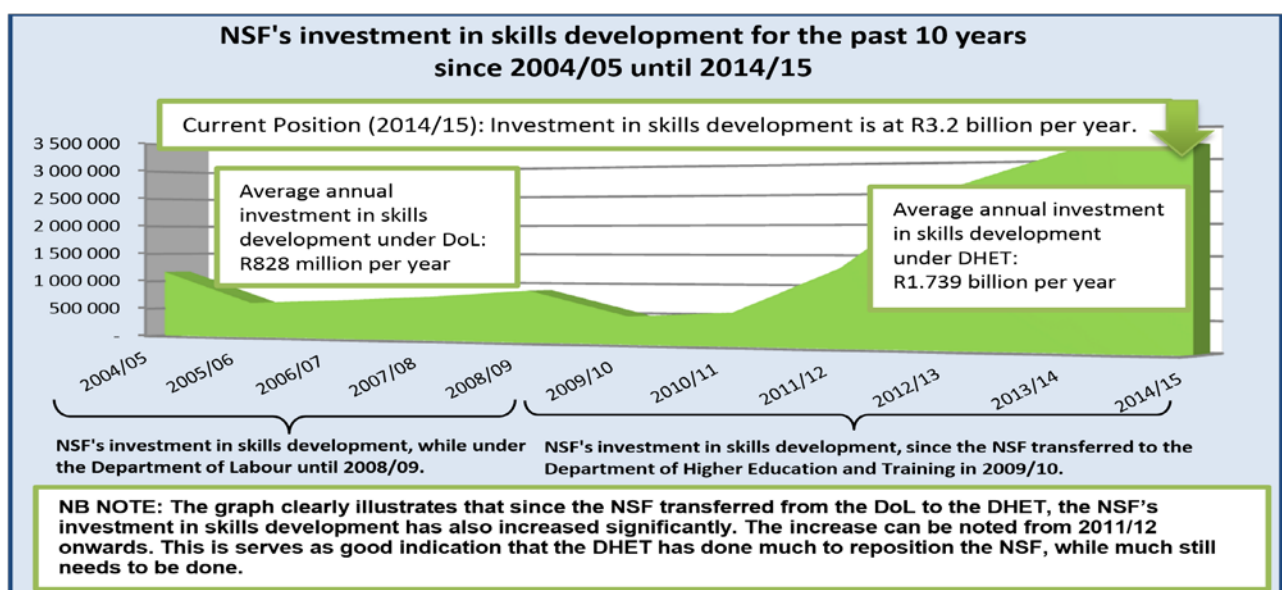


Figure 4.3: NSF revenue versus investment rate (NSF, 2016b)

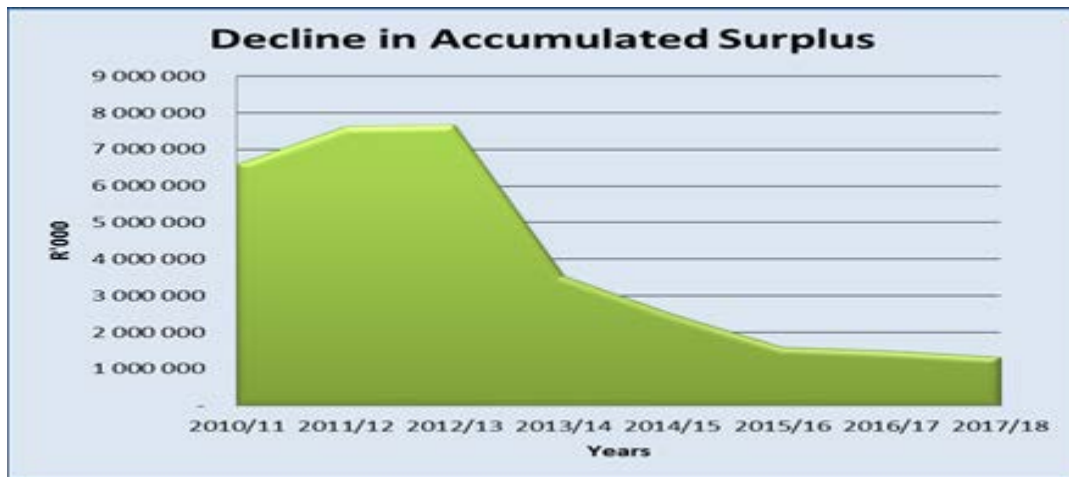


Figure 4.4 NSF Surplus decline profile 2010-2018

The next figure 4.5 illustrates a breakdown profile of ZAR 4.697 billion⁴ towards four key national funding priority areas (including a huge part on skills training interventions), namely education and training of learners, capacity building of the post-schooling system and higher education research.

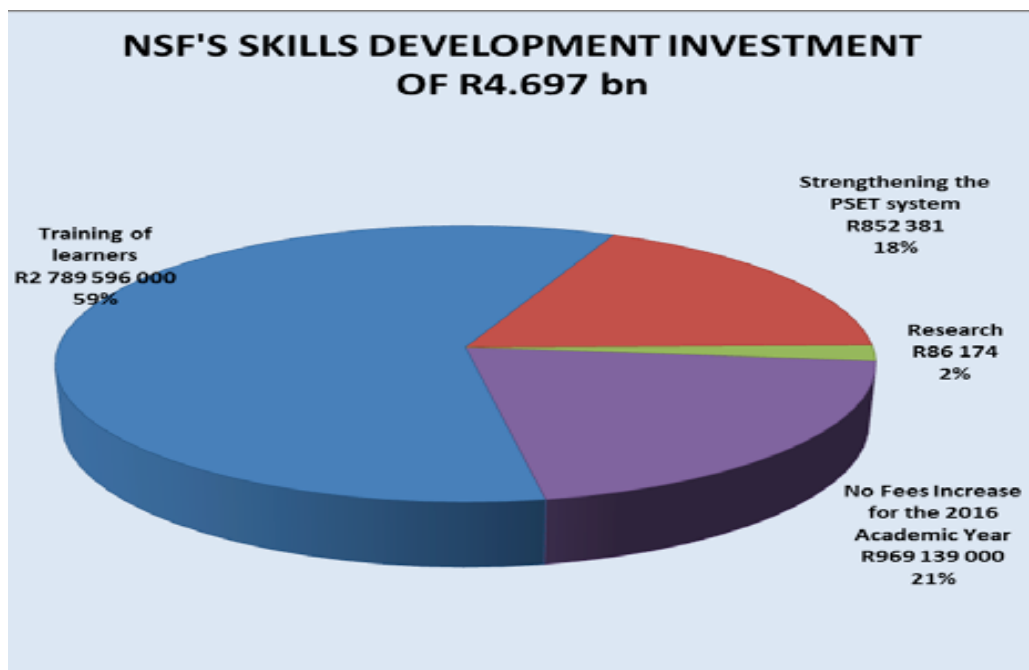


Figure 4.5 NSF skills development investment, 2015/16 financial year (NSF, 2016b)

As touched on in Chapter 1, soon after the establishment of the DHET, a White Paper for Post-School Education and Training was released (South Africa. DHET, 2013a). This policy

⁴ Equivalent to US\$ 340 720 380 at the time of writing this study.

document provides direction for the NSF as the White Paper provides the framework for development and funding of higher education and training, while also specifying the principles and priorities of the various role-players involved in post-school education. These include not only the colleges and universities, but also the SETAs, NSF, advisory regulatory and quality assurance bodies such as the South African Qualifications Authority (SAQA) and the Quality Councils (South Africa. DHET, 2013a, p. vii).

Specifically, the White Paper (South Africa. DHET, 2013a) stated that the NSF would be responsible for skills development aligned with the NSDS, including building linkages within the skills systems and providing funds for government strategies such as youth programmes, small businesses, cooperatives and rural development. The NSF would also fund research and innovation across the sectors of the Department of Higher Education and Training.

The establishment of DHET as part of the reconfiguration process of the skills development landscape introduced South Africa to the new horizon of an expanded, effective and integrated post-school system. This new horizon presents itself as a challenge and an opportunity. The prospect of a new post-school education and training system ushered in an era of change and renewal. Historically, the skills development machinery was fragmented and segmented, but now under the banner of the DHET, the various sections of the skills development machinery converged with a common goal and purpose (NSF, 2013b).

A good example of the fragmented nature of skills development may be seen in the way the universities viewed one another – as competitors and not collaborators, and of course, far removed from the technical and vocational education and training (TVET) sector. I concede, while some universities do compete, good examples of cooperation exist like the University Forum for Biodiversity. Also, in certain domains like research funding, competition is quite reasonable because research funding grants are allocated on a competitive basis. Amongst the TVET colleges as well, there was fragmentation and lack of rationalisation of programmes. The White Paper for Post-School Education and Training (2013) signalled the beginning of a convergence of all sub-systems of the post-school education and training system under one umbrella, to work together to deal with skills development challenges in South Africa (South Africa. DHET, 2013e).

This was never going to be an easy process, as all sub-sections of the skills development system, not unlike the NSF described above, have been undergoing their own various changes.

For example, the SETA environment has recently experienced changes, via a re-articulation of their constitution and reconfiguration of the SETA landscape (South Africa. DHET, 2016). Another example is the challenging work around the TVET colleges, with concerted attempts to reposition them on the national stage and to address their governance issues and efficacy in the vocational education and training landscape (South Africa. DHET, 2016). An additional main feature of the emergent post-school system is the difficult task of policy articulation, participatory consultation and effective management of stakeholder relations (South Africa. DHET, 2013a). It is within this context that the NSF emerged as a national resource and key component of the skills development machinery (South Africa. DHET, 2014a and DHET, 2014b). In this regard, the White Paper for Post-School Education and Training (South Africa. DHET, 2013a, p. 62) stated that,

... the NSF must continue to be responsible for skills development aligned to national development strategies and priorities. The fund is an important source of funding to enable the linkages between the skills development system, and the other post-schooling sub-systems that will be put in place.

The OECD Report (2014) and the White Paper for Post-School Education and Training (DHET, 2013a) charted the course of the NSF as a ‘catalytic fund’ in support of the post-school education and training skills machinery. The role of the NSF is tied uncompromisingly to the objectives of all the key stakeholders within the post-school education and training system of which the Department of Higher Education and Training (DHET) has assumed custodianship.

Studies like the NSF’s first Business Case (2007) on the work of the NSF provide helpful guidance and insight in understanding its changing mandate, structure and functioning. Following the move to the DHET, one of the first studies undertaken on the NSF, by the Department of National Treasury in 2014, attempted to shed more light on valuable lessons in term of the NSF’s return on investment prospects relating to contact engagement with training/service providers.

4.6.1 Extension event: NSDS III period and preparations for NSDS IV

While these organisational and policy changes were taking place, the NSDS III continued to be implemented by the DHET and its institutions, to be continued until 2018, with, for example, the Sector Education and Training Authorities being re-established for two years (2016-2018). NSDS IV was due to be released in 2017, following the five-year cycles of the NSDS policy system. However, due to the tedious consultation procedure required by the legislative demands related to the extension process, the releasing of the NSDS IV has been delayed.

Hence a policy to re-establish Sector Education and Training Authorities (SETA) is under construction. The Department of Higher Education and Training has released a document entitled “Proposal for the new National Skills Development Strategy (NSDS) and Sector Education and Training Authorities (SETAs) landscape (South Africa, 2015) within the context of an integrated and differentiated post-school education and training system”. The document was published and circulated for public and key stakeholders’ comments/input in Government Gazette 39386 (RSA, 2015). Subsequently, the deadline for public comments on the Proposal for the National Skills Development Strategy (NSDS) and the SETA Landscape was extended from 20 January 2016 to 29 February 2016. Finalisation of the outcomes of this process was not complete at the time of writing this thesis.

The National Skills Development Landscape Proposal 2015 entrenches objectives outlined in the White Paper for Post-School Education and Training (2013a): Building on Expanded, Effective and Integrated Post-School System. The intention of the White Paper is to shape an integrated post-school education and training system that serves the skills needs of the nation by placing greater emphasis on the catalytic role played by the NSF in particular (South Africa, 2015). Further, this envisaged skills system endeavours to ensure that SETAs become more responsive to skills needs and the supply of required skills, that more effective and efficient disbursement levels of skills levies be assured from a sector-specific funding model to a centralised cross-sectoral funding model and that the DHET coordinate the skills planning process. The National Skills Development Landscape Proposal suggests that the current sector-specific skills funding model be changed to a centralised cross-sectoral funding mechanism, and that ‘the language of occupations’ be the accepted terminology for both workplaces and learning institutions, instead of workplace specific job descriptions and qualifications. Once public input has been received and considered, a final policy document will be prepared that includes an implementation plan, organisational and personnel implications, financial implications and legal implications. Implementation will be from 1 April 2018 (see Chapter 5, section 5.4 for a further detailed discussion on skills development landscape changes) (South Africa, 2015).

As can be seen from the above, the NSF has been through ‘turbulent times’ with successive systems of organisational improvement and institutional change taking place. The number of organisational studies such as the NSF Business case (NSF, 2007), Deloitte management report (NSF, 2009) and the National Treasury expenditure review report (NSF, 2014a) attest to the

NSF's organisational renewal challenges. Some of the further important implications for national green skills funding are explored in the next chapter, among which are limited capacity to increase responsiveness as noted by Respondent 5 in respect of the NSF's limited capacity to increase responsiveness: *"The NSF is facing great need to expand its organisational capacity. E&Y is trying to bring additional capacity to enhance the effectiveness of the NSF"*. This issue will be amongst others discussed in the next chapters.

4.7 Conclusion

This chapter focused on a descriptive analysis the NSF in terms of its historical dimension, strategic policy sources governing the fund, the role of the fund with special reference to green skills during the NSDS five-year strategic policy event periods namely, NSDS I (2001-2005), NSDS II (2005-2010) and NSDS III (2011-2016 extended -2018), as well as providing a brief description of emerging impulses anticipating NSDS IV.

The descriptive analysis has situated the NSF as one of the key mechanisms and drivers of national green skills funding in the country. The fund has the institutional, governance, legislative, policy and skills development implementation track record to play a leadership role through the provision of funding for green skills towards the green economy – a function which, as discussed here and in the previous chapter, is as yet under-developed.

This brings to close the second part (B) of the research phase, namely the descriptive analysis. The next chapter introduces the Phase 2 of the research, which involves component analysis.

CHAPTER 5

KEY COMPONENTS OF SKILLS DEVELOPMENT LEADERSHIP AND GREEN SKILLS FUNDING DRIVERS

PHASE 2: COMPONENT ANALYSIS

5.1 Introduction

This chapter discusses Phase 2 of this study (component analysis) which follows from the descriptive analysis in Phase 1 (Parts A and B). The chapter offers a response to the third sub-research question: *What are the key skills development components currently influencing the NSF's responsiveness to green skills within the post-schooling policy context?* This offers another level of analysis, deepening the process of analytical resolution provided in Chapters 3 and 4 and according to the study design. The most significant policy shaping this analysis is the Post-Schooling White Paper on Education and Training (DHET, 2013a) as it is the overarching guiding policy shaping the way that the DHET provides leadership to the NSF which is one of its institutions. However, as noted in the previous chapter, various other policies influence the NSF's activities too.

In response to the abovementioned question, I claim that the DHET, NSA and the skills levy system are key leadership components of major influence interplaying, affecting and informing NSF's responsiveness to national green skills funding. These components are strategic skills development mechanisms. They have emerged as important causal forces determining significant responsiveness in the ambiance of national green skills funding.

Danermark et al. (2002, p. 9) described the task of component analysis as: "*distinguishing the various components ... analysis = a separating or dissolving examination*". In particular, three key components of the NSF have been identified within the post-school education and training policy context for further analysis. These appear to be potentially catalytic for further development of the NSF's role in green skills funding. They are:

- i) The DHET as the custodian leader of the post-school education and training system;
- ii) The NSA in terms of the SDA emerging as a key stakeholder relations leader and advisory voice to the Minister of Higher Education and Training; and
- iii) The significance of the skills levy structure under review with important implications for the process of renewal towards greater awareness of national green skills funding.

The HRDC Review Report (2013, p. 90) noted the following in terms of the important repositioning of the NSF within the matrix of the skills levy system. The DHET has “the responsibility to lead the NSF in taking account of the longer term vision”. Part of DHET’s responsibility is “... to revise the processes [of the NSF] to include a design of the financial management function within the proposed skills council”.

Following the historical analysis in the previous chapters, and particularly the historical analysis of the NSF in Chapter 4, the leadership role of the DHET has emerged as the key force informing the strategic direction of the NSF (section 5.2). Within this structure, the National Skills Authority (NSA) constitutes the platform through which the influence of the DHET is embodied and relayed to the institutional ambiance of the NSF (section 5.3). Lastly, the ambiance within which the NSF functions operationally necessitates an in-depth critical reflection of the Skills Levy funding system and associated implications for national green skills funding (section 5.4). The following statement by Danermark et al. (2002, p. 112) provides support for the identification and location of the above mechanisms such as the DHET, NSA and the skills levy structure within the life world of the NSF:

In this way the studied phenomenon can be described as a result of several causal mechanisms. These mechanisms are located partly in the family structure, partly in the working life structure. It is at the social level that mechanisms arise (emergent powers).

5.2 Emergent forces: The custodian leadership role of the DHET

5.2.1 Core issues informing the DHET leadership role

The year 2000 signalled the birth of the skills development system as we know it today. This important time period is indicative of the emergence of key skills development machinery, such as the SETAs, the NSF and the NSA, as reported on in previous chapters, and as also previously discussed, these mechanisms were founded within legislative frameworks like the Skills Development Act, the Skills Levies Act, and various other regulatory frameworks (NSF, 2013; South Africa. DoL, 1998). As noted in the previous chapter, the Department of Labour (DoL) pioneered NSDS I and II and constituted the guiding frameworks for spending resources flowing from the skills levy. In the main, the commitments of the skills development system during this time remained largely unchanged while maintaining a strong focus on improving skills development towards employability (South Africa. DoL, 2000).

Retrospectively, it is now possible to see that education and skills development functions were viewed as different processes with the split between the Department of Education and the Department of Labour. The prevailing tendency created a response where education and training were distinctly divided and dualistically embodied (South Africa. DHET, 2015c).

Despite some notable achievements that the skills development system achieved over a decade ago, for example, the enhancement of greater awareness around equity in skills development training, the country's educational and socio-economic conditions have remained a gigantic challenge, for example: a) poverty and unemployment have remained obstinately high; b) skills shortages have remained high, if not even higher than they were; and c) skills production has not kept pace with the skills demand (South Africa. DoL, 2000; South Africa. DHET, 2015c).

The dawn of the NSDS III under the leadership of the DHET introduced a new horizon according to which it is envisaged that it is possible to develop a more integrated, seamless education and training system, where an integrated yet differential post-school system can function effectively under the banner of the White Paper for Post-School Education and Training (South Africa. DHET, 2013a). It is expected that the emerging post-school education and training system ought to produce a skilled and capable workforce amidst some of the following challenges for example:

- i. An economy that remains susceptible to global changes and turbulences;
- ii. Increasing disparities in skills development between urban and rural populations;
- iii. Systemic blockages in the education and training area: low through-puts and skills mismatch;
- iv. Responses within the context of other government frameworks and/or strategies: Human Resource Development Strategy, New Growth Path, Industrial Policy Action Plan, Rural Development, and Medium Term Strategic Framework;
- v. Flexible (non-target driven) approach to take into account contextual changes in socio-economic factors;
- vi. Expansive rural and urban, formal and non-formal, public sector provisioning of skills,
- vii. Enhancing and emphasising of the public sector role in skills development; and
- viii. Implementing key focus areas namely, work placement and work integrated learning (WIL) (South Africa. DHET, 2013a).

Dealing with these complexities is a tall order and a significant challenge, which requires strong leadership and clearly framed strategic programmes and mandates to guide structures like the

NSF, as was also shown in the historical discussion of this funding structure in Chapter 4. Respondent 7 noted the NSF's skills planning dependency on DHET in such a context: *"The NSF should rely on other stakeholders to identify skills gaps e.g. the DHET skills planning unit"*. This is while Respondent 13 believes that the *"DHET mainly pursues partnerships with universities"*. This shows that clear and comprehensive leadership for dealing with these complexities is necessary. The following statement by Wedekind and Mutereko (2015, p. 61) emphasises the key leadership role of the DHET as the main driver of partnerships interplaying with the NSF and other strategic mandates, including the national green skills agenda. They stated: *"The DHET is the overall custodian of the system under discussion ... Through its structures and the entities that report to it, it has the greatest influence over the system and can act as facilitator in bringing role players into dialogue"*.

- ***A national green skills response challenge: The NEET factor***

Additionally, policy directives as charted in the strategic documents of the Department of Higher Education and Training (DHET), such as the White Paper (2013a) for Post-School Education and Training, identify young people who are NEETs (not in education, employment or training) as priority clientele when it comes to funding and the provision of education and training opportunities. According to a very recent and prominent review (OECD, 2014) on South Africa's vocational education and training system, about one third of young people between the ages of 15 and 24 – or 3 400 000 – fall into the category of NEETs (OECD, 2014; NSF, 2014a and NSF, 2014c). A closer look at the NEET factor is required (OECD, 2014) as it is important as part of the responsibility of the DHET in terms of defining priorities and setting the agenda for skills development and associated funding in the current period within its more integrated vision.

The current skills development role players, all of whom are part of the emerging post-school education and training system (for example the NSF, the SETAs, universities, TVET colleges, industry and social partners in South Africa) are desperately seeking possible solutions to the triad challenge of poverty, inequality and unemployment. Add to this the fact that over three million young people in South Africa are excluded from work, education and training, and the picture becomes even more bleak. The discussion is therefore that NEETs should be prioritised in the skills funding system going forward. However, the biggest challenge with prioritising a particular group is the fact that it will always be at the expense of other groups – for example the adult group of 14 million faced with a literacy challenge (Baatjes, Baduza & Sibiya, 2014;

South Africa. DHET, 2011). The table below clearly illustrates the statistical profile of the NEET challenge.

Table 5.1 DHET NEET profile (NSF, 2013c)

Ford Foundation study -2007: Not Employed, Not in Education Not severely disabled 18 – 24 age cohort								
	18	19	20	21	22	23	24	Total
Unspecified	2,595	2,457	3,786	4,762	4,998	4,054	4,699	27,351
Primary or less	61,056	64,285	70,496	78,564	73,575	75,261	77,425	500,662
Secondary education less than Grade 10	51,192	59,643	73,194	79,050	83,367	81,502	80,649	508,597
Grade 10/Std 8 or higher but less than Grade 12	65,228	94,608	132,158	164,596	176,733	174,325	183,146	990,794
Grade 12/ NTCIII (no exemption)	47,447	65,190	89,292	99,797	100,711	96,139	100,080	598,657
Grade 12/Std 10 (with E)	10,226	13,526	14,778	14,259	16,910	13,869	14,766	98,335
Certificate with Gr 12	2,732	4,025	6,299	8,157	9,672	8,340	7,811	47,035
Diploma with Gr 12	388	1,151	2,464	3,461	6,103	5,733	5,995	25,294
Bachelors degree	188	322	430	1,774	1,460	2,831	2,347	9,352
BTech	6	126	192	312	78	654	414	1,780
Post grad diploma			244	405	400	581	867	2,498
Honours degree			60	220	383	694	337	1,695
Masters/PHD						135	50	420
Total	241,056	305,333	393,441	455,434	474,501	464,119	478,587	2,812,471

In their study on NEETs in South Africa, Cloete and Butler-Adam (2012) found that in 2010, 3 200 000 young people failed to gain access to the post-schooling system. They claimed that more than double the number of young people are not in education and training compared to those who are in the post-schooling system. According to a South Africa United Nations Population Fund (UNPF, 2014) report, the population of the country consists mainly of youth below the age of 35, and youth comprises about 66% of the national population. According to Statistics South Africa's mid-year population estimation process, of the 54 million people in the country, 18.5% are between the ages of 10 and 19, and 24% are between 15 and 24. These statistics begin to indicate why the DHET would consider this group a priority in skills planning.

The UNPFA report (2014) further mentioned the importance of the South Africa's National Youth Policy (2009-2014), which gives the definition of youth as persons between the ages of 15 and 35 years. This policy prioritises the needs and interest of young people in relation to health and well-being, education and training, economic involvement and social unity. Clearly, as a huge part of the country's population, young people constitute the embodiment of South

Africa's future. South Africa's liberation history portrays a story where young people have been central in initiating, shaping and delivering a free country politically (South African History Online, 2016).

Moreover, in terms of the global trend, almost 50% of the world's population is below the age of 25 years. The United Nations Population Fund Annual (UNPFA) report (2014) argued that there is therefore a need to take seriously any kind of investment or involvement to support the largest generation of young people ever to transition the bridge into adulthood effectively. The report indicates the importance of ensuring access to reliable and up-to-date data and information for decision-making requirements (UNFPA, 2014).

Based upon the aforementioned social analysis, it is clear that the NEET factor emerges as a reality of national and international importance, with serious implications for all dimensions of life. It is not surprising therefore that the DHET is monitoring this phenomenon and considering it as a critical priority area for skills planning and prioritisation in the post-schooling system. A DHET 'NEET' Factsheet (South Africa. DHET, 2013d) states that many countries world-wide are currently using information about NEETs to monitor the labour market and the social dynamics of young people. It is generally acknowledged, both nationally and internationally, that NEETs constitute one of the greatest threats to social stability. Consequently, the monitoring of NEET trends and strong interventions to address the challenge of NEETs are key to promoting peace and stability in a society. In addition, information about NEETs has been known to strengthen the position of young people on the political agenda (South Africa. DHET, 2013d, p. 2)

The DHET NEET Factsheet goes on to say:

... youth unemployment is both a demand-side, as well as a supply-side problem in South Africa. It is a demand-side problem since the number of jobs created in the economy is too small to absorb thousands of young school-leavers searching for jobs. On the other hand, youth unemployment is a supply-side problem, since many young South Africans lack the appropriate skills, work-related capabilities and higher education qualifications required for a high-skills economy. (South Africa. DHET, 2013d, p. 2)

The DHET (2013d) NEET Fact Sheet provides further insights that guide strategic planning and leadership to respond to this concern. The number of NEETs in South Africa is on the increase – from 2.0 million in 1996 to almost 3.2 million in 2011. South Africa's NEET population at 30.8% is significantly higher than that of many other countries. For instance, the

proportion of NEETs in Brazil is about 19%, while the average in OECD countries is about 16%. In 2011, KwaZulu-Natal had the highest number of NEETs (693 000), followed closely by Gauteng province with 683 000 NEETs. These figures suggest the need for high-level interventions to mitigate the deleterious effects of youth marginalisation in these two provinces.

In 2011, two groups of persons aged 15 to 24 comprised a high proportion of NEETs: (a) those with a matric certificate as their highest level of qualification, and (b) those with secondary education less than Grade 12 as their highest level of qualification. It is of grave concern that over 1 million persons, who have Grade 12 as their highest level of qualification, were NEETs in 2011.

The number of persons aged 15 to 24 who have Grade 12 as their highest level of education attainment and who are NEETs has increased significantly over the years – from 339 000 in 1996 to over 1 million in 2011. 11 000 persons who had a bachelor's degree as their highest level of education were NEETs in 2011. This figure too, has increased significantly over the years and the number of female NEETs far exceeds the number of male NEETs. The issue is also racialised as more black young people are in the NEET category than white young people (South Africa. DHET, 2013d, pp. 2-5)

Figure 5.1 below illustrates the huge challenge facing the Department of Higher Education and Training and its NSF mechanism in providing post-school education and training possibilities for young people in South Africa.

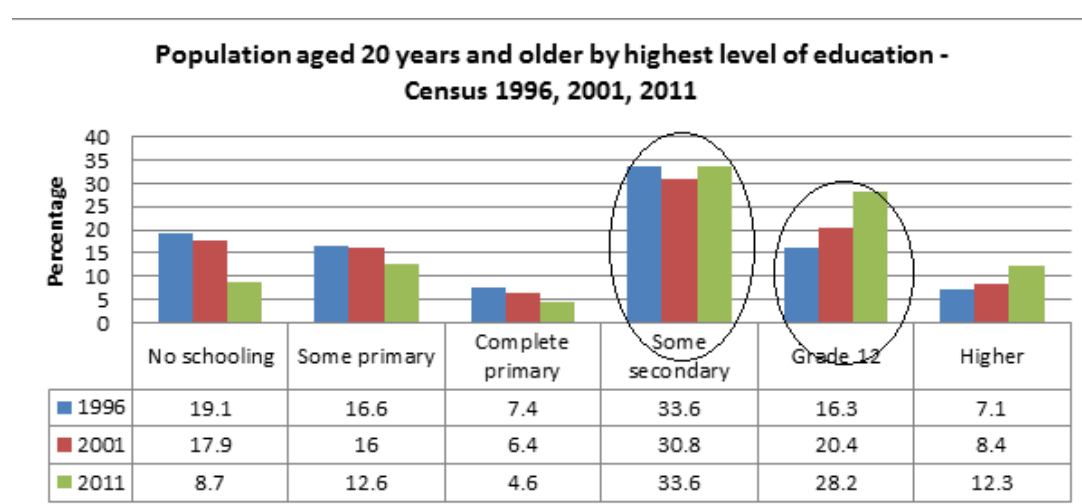


Figure 5.1 Cohort in need of Post-school Education and Training Opportunities (from Stats SA, Census 2011, Key results)

Also, the DHET assumes the critical importance of responding to the NEET challenge via an integrated approach to post-school education and training and is seeking to channel youth towards artisanship (aiming at educating approximately 10 000 artisans per annum) and developing work integrated learning programmes that support internships and work placements. Here, the DHET (2013d, p. 7) states that, according to the Youth Employment Accord (2013), “all government departments are required to employ interns, the number of which equates to 5% of the total number of their employees”.

In addition, state-owned enterprises are expected to expand placement opportunities for TVET Colleges and university students who need work experience in order to complete their studies. The Youth Employment Accord also calls for SETAs and other institutions to play a stronger role in addressing the challenges faced by young people in sector and workplace training programmes (South Africa. DHET, 2013a).

- ***Response option: A critical realist reflection on the NEET factor***

The NEET factor is clearly a complex issue with deep-seated historical dimensions, which critical realism can help to uncover in terms of wider skills planning and leadership. To illustrate the power of the ontological dynamics of context in relation to the NEET factor, I briefly draw on the work of Schostak (2002), who in a critical discussion on the ‘real’ in critical realism, distinguished between what he called the ‘educative’ and ‘schooling’. He suggested that the educative space stands abused over the years through mass political intent to control and with the sole purpose of producing citizens that are in good standing, without challenging the underground forces of ‘power’, ‘belief’ and ‘wealth distribution’. He pointed to an often unmentioned causal factor namely, that “the fear that articulates schooling is the so-called anarchy of the ignorant mass” (p. 4). Consequentially, schooling becomes the desired objective that promises the ultimate satisfaction and the quest in pursuit of the ‘real thing’ that is missing. Schostak (2002), in his deliberation on this problem surrounding assumptions about schooling, concluded that schooling will always remain unfulfilled. He suggested that it is impossible to meet the demands thereof completely. There will never be enough scientists, economists, business leaders, enough ‘common sense’, enough respect for authority and enough voters produced via schooling to support a particular political party.

Schostak (2002) instead opted for a definition of educative science as “the process, practice, knowing and knowledge derived from drawing into being or realising the ideas, values, images

and sensations of the creative imagination” (p. 5). He suggested that schooling is essentially about upholding the status quo and the preservation of prevailing norms and standards. He argued for an educational ambiance where education is about making a real difference or change, involving the embracing of alternatives along the trajectory of life, evolving into organic manifestations of meanings and purposes.

In addition, he saw reality, including education and training realities, as a work in progress because of causal powers which produce effects under certain contextual conditions. As can be seen from the analysis of the NEET situation above, an economic system that is not providing enough jobs, a history of poor quality education, the history of apartheid, inadequate opportunities in rural areas and gender relations, are some of the causal powers contributing to the current NEET situation, which poses challenges for DHET leadership in responding through an integrated post-schooling education and training system. Schostak (2002) employed the analogy of gunpowder, which explodes under certain contextual conditions. ‘Black dust’, in other words gunpowder, could lie on a table for some time without any effect. It lies dormant. This does not mean that it does not exist. Under the right circumstances, it will explode – only come to its rightful purpose when the triggering conditions are met. Science likewise only makes real sense once one discovers the underlying frames or structures (Schostak, 2002).

Cloete and Butler-Adam (2012) explained that the DHET has taken account of early research on issues such as the NEETs and issues of alignment with other policies in re-thinking the nature and direction of the post-schooling system in South Africa. The first NEET study was undertaken in 2009 and by 2013, when the DHET White Paper on Post-School Education and Training was developed, these issues were integrated into the new policy direction and thinking. They noted:

...What is undoubtedly positive in these documents is a certain convergence of vision in the projections of an expanding post-school higher education system, with substantial growth at the college level, the importance of preparing students for a knowledge economy and the hope, at least, for an articulated, coordinated and differentiated system. (Cloete & Butler-Adam, 2012, p. 1)

They warned, however, that unless policy prescriptions begin to push in a reflective and realistic direction, South Africa is doomed to the now depressingly familiar cycle of policy optimism followed by implementation despair (Cloete & Butler-Adam, 2012, p. 1).

It is within this context that the DHET has a strong expectation of the NSF to become a national resource that initiates and responds to national priorities such as the NEET concern outlined above. Like other structures involved in the post-schooling education and training system, under its integrated intentionality, the NSF, as an institution of DHET, must address the causality of the concerns in context, while also targeting gaps and complementing resource shortages for national priorities. Furthermore, the fund should seek to promote and drive partnership-based programmes as it is impossible for one institution to address the complex concerns arising, for example, via the NEET issue raised most recently by the DHET in its drive to provide leadership to the post-schooling education and training system. At the heart of the emergent DHET, a strong notion prevails that the fund ought to play a catalytic role in skills development across all skills development sectors (NSF, 2013a) and that this catalytic role should be oriented towards addressing national priority areas as outlined above.

Furthermore, in terms of the SETA landscape, the DHET views its role to integrate the SETAs in the post-school landscape into a more effective formation (South Africa. DHET, 2013a). It is the responsibility of the DHET to ensure that SETAs are key mechanisms in strategic economic spaces. SETAs should not view one another as competitors and should be driven as parallel sectors; they should support economic growth and development and the priorities of the New Growth Path as well as the skills needs of the country. The DHET also has a leadership role to ensure the effective utilisation of the skills development levy resources to support public institutions of education and training. Therefore, to improve the functionality of the SETAs towards better outcomes in line with strategic goals and effective funding, support of skills priorities of employers and government is critical. It is also assumed, under the leadership of the DHET, that SETAs should facilitate the relationship between employers and public institutions, especially TVET colleges, to ensure alignment of training programmes and labour market needs. SETAs must strive to enhance better skills planning in collaboration with TVET colleges, universities of technology and comprehensive universities. The DHET's mandate in this respect is to increase and intensify stakeholder participation and oversight responsibility in regard to the SETAs, especially in terms of the process of skills levy transfers (South Africa. DHET, 2013a), as discussed further below.

Figure 5.2 below illustrates the core elements of DHET's responsibility within the context of a developing post-school education and training system. Here it is important to note the integrated and differential features between workplace learning governed by sector education

and training authorities, quality assurance structures and education and training institutions in respect thereof. Also, note that skills planning becomes important as a key driving feature to the delivery mandates of education and training institutions. Moreover, fundamentally, all post-school education and training activities are founded and informed by national strategic policy frameworks for example Human Resource Development Strategy of South Africa (HRDSA), the New Growth Path (NGP) and the Industrial Policy Action Plan (IPAP).

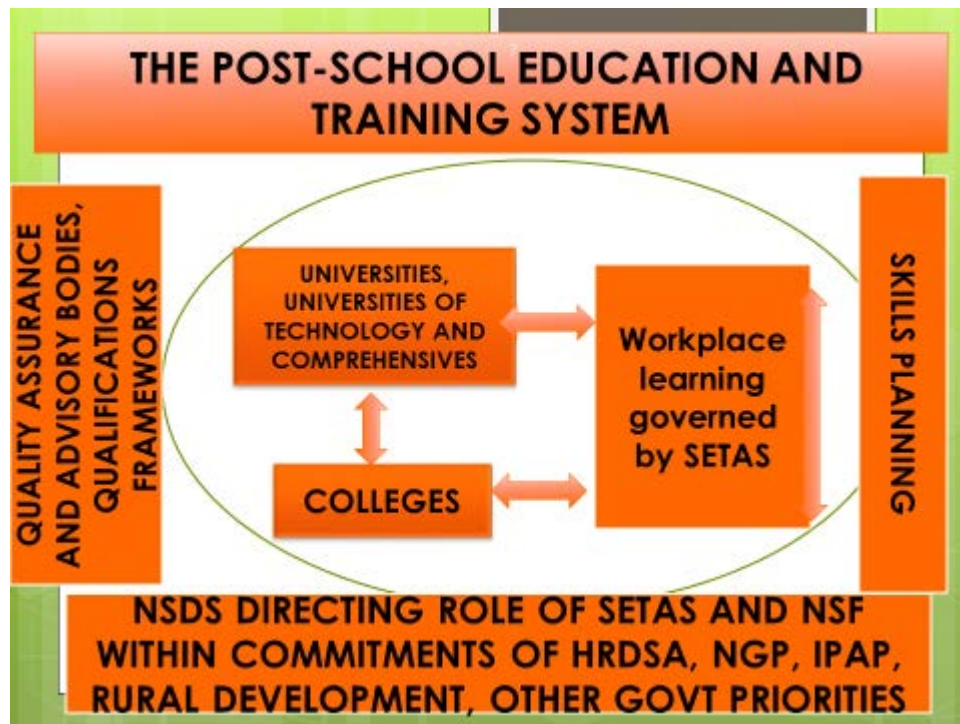


Figure 5.2 Emergence of DHET’s post-school education and training system (NSF, 2013c)

5.2.2 Implications for national green skills funding

DHET is the custodian of the skills mandate in South Africa and this includes skills for the green economy. The department’s skills mandate emanates from government Outcome 5 which states the following: “A skilled and capable workforce that shares in, and contributes to, the benefits and opportunities of economic expansion and in an inclusive growth path” (South Africa, 2009) – see also Chapter 4. The Minister of Higher Education and Training signed a performance agreement with the President of South Africa, encapsulating a delivery agreement (DA) that ensures that the intended outcome is achieved. Included in the DA are detailed outputs, targets, performance indicators and key activities for each outcome respectively (South Africa, 2009b).

The White Paper for Post-School Education and Training (South Africa. DHET, 2013a) further attempted to guide the DHET and its institutions strategically by means of the provision of policy direction towards building a developmental state, a responsive democracy and a healthy economy (NSF, 2015a). Hence the NEET target profile has become a national priority of notable significance for the DHET, with its institutions such as the NSF responsible to become more responsive to emergent skills needs. The DHET as the custodian of the skills mandate nationally assumes a major responsibility to determine response modalities to cater for national green skills funding requirements through funding mechanisms like the NSF, whilst focusing on job creation for the youth (black, female, rural etc.).

To ensure greater integration between education and training sectors, the Department together with all its institutions has the responsibility to align its strategic, operational plans and programmes with key national policy documents like the National Development Plan and the Green Accord. Also, an important element especially for green skills stakeholder relations, is the matter of interdepartmental collaboration through interactive engagements that will enhance cooperation between various departments and entities, and in both public and private organisations, towards the achievement of national priorities (South Africa, 2010a; 2011). The element of stakeholder relations starts within the DHET itself. Hence a close look at the authority responsible for skills development in the country emerges as critical component in relation to national green skills funding.

5.3 Emergent forces: The leadership role of the National Skills Authority

The National Skills Authority (NSA) was established in 1998. The establishment thereof was done in terms of Chapter 2, section (5) of the Skills Development Act (SDA), Act 97 of 1998), as amended by Act 37 of 2008. The core purpose of this institution was to advise the Minister in accordance with the SDA. The SDA provides for the NSA to fulfil an oversight and advisory role over skills development policies like the national skills development strategies and implementation reviews. Part of the leadership role of the NSA is to advise and support the Minister and the DHET towards the effective transformation of SETA governance and performance functions. Figure 5.3 below gives a comprehensive view of the NSA structures and covers the different committee structures according to reporting lines.

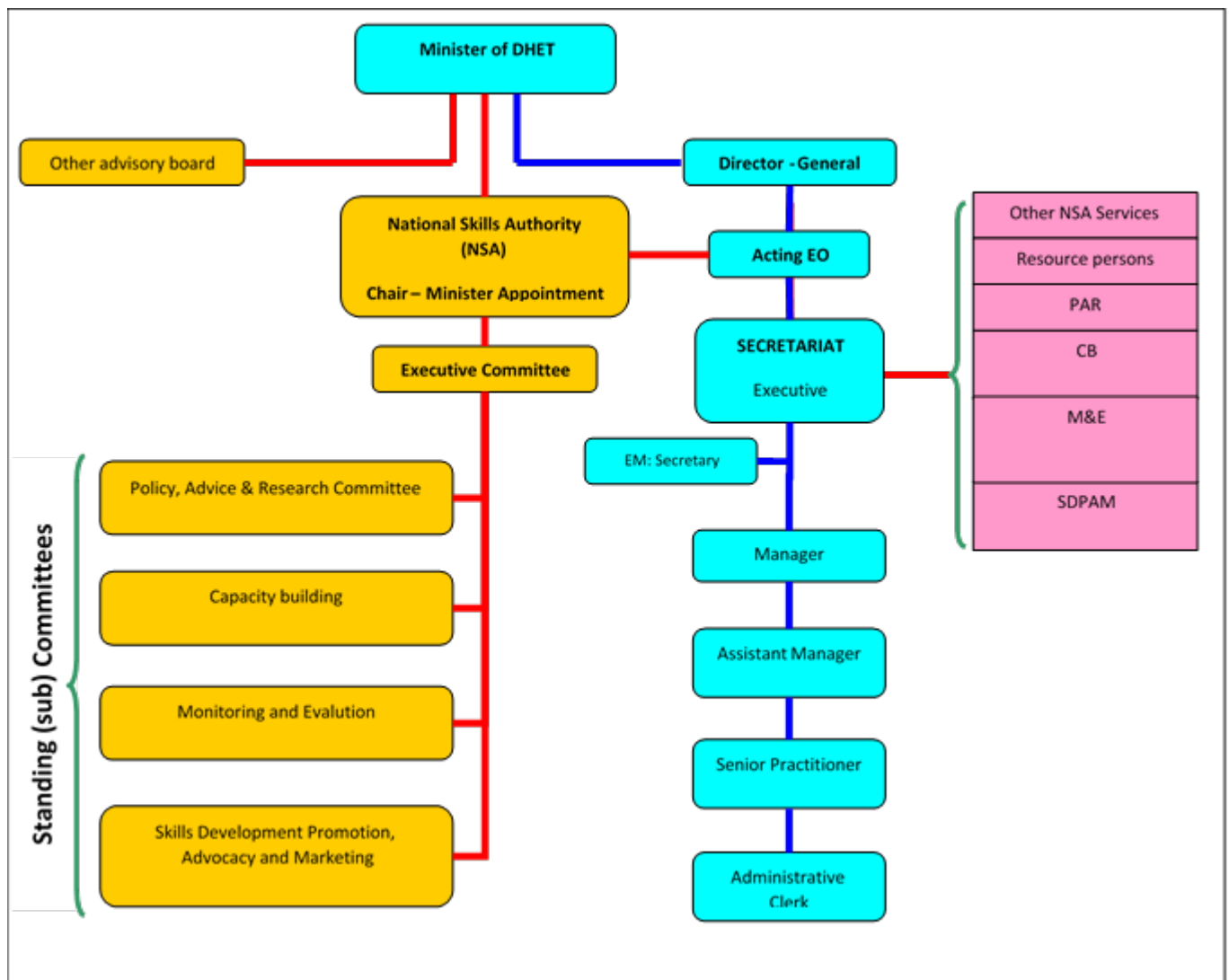


Figure 5.3 NSA structural framework (DHET, 2015e)

In October 2009, the Minister of DHET pointed to the essential strengthening and capacitation of the NSA as an advisory structure but noted that this ought to be guided by a proper analysis of the performance track record of the NSA.

The following issues constitute some of the DHET expectations for the future of the NSA:

- **Organisational change dynamics:** the NSA repositioning proposal (South Africa. DHET, 2010a) focused on the mandate of the NSA as determined by the Skills Development Act; however, a key question was posed as to whether the NSA was effective in performing its mandate in accordance with the Act.
- **Capacity constraints:** lack of capacity and resources renders the NSA ineffective.
- **Representation and integrity:** the possible implications of constituency-based representatives to the integrity of the NSA.

- **Reduction of duplication:** the relationship with the department and other structures or advisory bodies should be clarified to eliminate duplication of work and functions (e.g. the role of the NSA vs HRDSA, SETAs, NSF, QCTO, CHE, etc.).
- **Quality research:** the NSA should have authority of office and competence to offer independent, well-researched, quality advice.
- **Consultation process mapping:** there is a need to clarify the consultation process from start to finish, including the full spectrum of stakeholder relations. (South Africa. DHET, 2010a)

The White Paper for Post-School Education and Training (South Africa. DHET, 2013a) sets out a new role for the NSA, that of monitoring and evaluation of the SETAs. However, the NSA had earlier also been made aware of the requirement to perform its function in terms of the Skills Development Act of which monitoring and evaluation forms an integral part. It therefore becomes important for the NSA to exercise its authority in a vigilant manner, recognising that while its work is guided by the current legislation, the NSA is also expected to support the transitioning of the skills development system into the new post-school education and training agenda (South Africa. DHET, 2013a).

Some of the key mandate issues addressed by the NSA are the following: a) revision of policies and the development of new policy frameworks that are more responsive to the goals of NSDS III; b) strengthening of the implementation, monitoring and evaluation processes of the NSDS III towards greater capacity to give effect to the aforementioned realisation of NSDS III, responsibility to establish a stakeholder engagement platform such as a national skills conference, to encourage the sharing of knowledge of NSDS and to stimulate best practices at the national and international level; c) the capacitation of NSA in order to deliver effectively on its mandate within the new PSET context (South Africa. DHET, 2013c; 2013a).

The NSA assumes responsibility for the following activities: a) the coordination of the constitutional development process of the SETAs; b) funding regulations; c) regulation of the conditions of service relating to SETA chief executive officers (CEOs): and d) skills development bills. Some of the strategic focus areas of which the NSA assumes leadership are: a) support the implementation, monitoring and evaluation processes of the NSDS III; b) repositioning of the NSA as per strategic mandate by the Minister of DHET; c) capacitation of the NSA's organisational structure; and d) management of investigations into SETA

mismanagement and organisational scope creep concerns (South Africa. DHET, 2015c, 2015d, DHET, 2013a).

The NSA held its national skills conference in October 2011. The main objectives of the conference were the following: a) deepening the understanding of the post-school system and quality councils; b) deepening the understanding of the role of SETAs and skills development funding models; c) strengthening skills development in a post-school system including work integrated learning; d) promoting youth, women and people with disability in productive work for inclusive growth; e) fast-tracking artisan development and international best practices on skills development; f) developing skills for the growth of the economy and creating employment opportunities (South Africa. DHET, 2015c; 2013c; DHET, 2013a).

The DHET makes a budget provision towards the work of the NSA. The budget provision is mainly sourced from voted funds to support activities such as: a) personnel expenses for Secretariat staff; b) administration and logistics (i.e. printing, travelling, venues, subsistence); c) the NSA Secretariat directorate that is housed in the Skills Development branch of the DHET is responsible for the recommendation towards approval of the NSF funding strategy, and d) as and when required, the NSA receives funding from the NSF for activities such as the Skills Conference (South Africa. DHET, 2013a).

During the NSDS III (2011-2016) period, the NSA provided advice to the Minister of DHET on the following key policy areas: a) review of the skills development legislative framework to support integration of education and training and the national priorities of government. This important policy area includes the NSF's funding framework; b) development of a framework towards the mobilisation of business, government, community and labour to assume full ownership of the NSDS III; c) a post-school education and training system that ought to cultivate a developmental state and systematically build towards a skilled and capable workforce; d) greater enhancement of monitoring and evaluation as key functions specifically relating to the implementation, performance and governance of the NSDS III; e) in order to ensure the promotion of beneficiation and business enterprise development, a stronger focus is needed on research, development, innovation to promote beneficiation and business enterprise development opportunities (South Africa. DHET, 2015d).

The monitoring and evaluation role is expected to be additional to the other legislative responsibilities to support the integration of the skills development system into the agenda of

the envisioned post-school education and training system, in accordance with the SDA (South Africa, 1998a). The NSA's capacity to measure impact and to determine skills delivery outcomes across the post-school education and training spectrum will become critical to the integration and analysis process of data sourced from the DHET's institutions. The knowledge management function in relation to the monitoring and evaluation role of the NSA will ensure that all strategic and operational plans are informed by the following qualitative performance pointers, namely a) progressive shift towards the achievement of the NSDS III goals and transformational imperatives; b) informed by NSDS III Pillars; and c) support national policy objectives like NDP, HRDSSA and other government priorities and programmes like the Green Skills Accord and rural development priorities (South Africa. DHET, 2015d).

5.3.1 Implications for national green skills funding

Section 5 of the SDA (South Africa, 1998a) imposes the responsibility on the NSA to advise the Minister on the NSF's proposed strategic framework and criteria for the allocation of funds. The NSA plays a critical role in the recommendation and endorsement process of the NSF's national funding strategy, which includes green skills imperatives. The NSF presents its funding strategy to the NSA for consideration which, upon acceptance, is further recommended to the Minister of the DHET and the Director General of the DHET as accounting authority of the fund.

Moreover, the envisaged monitoring and evaluation role of the NSA will assist tremendously in measuring the impact of national green skills funding programmes and green skills intelligence planning processes (South Africa. DHET, 2015d). However, the NSA will need to have a strong understanding of the green skills landscape and the demand for green skills development in the country.

The NSDS III Implementation Progress Report 2011-2013 (South Africa. DHET, 2013b) flowed from a direct output of the work of the NSA. This report acknowledged the fact that the NSDS III does not explicitly factor the need for green skills into its goals, and stated the following: "Priorities that will take precedence in the National Skills Fund (NSF) (include) projects that are in alignment with the National Skills Development Strategy" and in "support of skills to support the green economy (5.2.1 National priorities under the NSF)".

The emphasis on green skills in the NSDS III Implementation Progress Report 2011-2013 (South Africa. DHET, 2013b) showed advances in the NSA's monitoring and evaluation of

green skills systems development in South Africa. The report cited the following progress reported by the NSA in connection with national green skills development, which also shows the areas of monitoring and evaluation of green skills that the NSA are taking up:

- a) the development of the Green Organising Framework for Occupations (OFO) by DHET;
- b) the allocation of R105 578 322 from the NSF towards a renewable energy centre;
- c) the NSA's collaboration with provincial skills development forums in relation to green skills advocacy work;
- d) research projects commissioned by SAQA through a partnership with Rhodes University that include an emphasis on workplace learning for sustainable development and research into learning pathways for green skills; and
- e) the hosting of the National Environmental Skills Summit 2012, which focused on the theme: 'Strengthening the Skills Pipeline for the Environmental Sector' (October 2012).

As reported on in Chapter 4, many of these initiatives have been supported by both national government (e.g. the NSF funding of the building of the renewable energy centre) and by civil society or sector organisations (e.g. the National Environmental Skills Summit), showing integrated engagement on green skills concerns in the country. Moreover, several green skills developments have been reported as being well underway, for example: a) the development of provincial green skills development plans; b) the establishment of the Eastern Cape Green Skills Forum; c) integrating green skills development into university education planning processes; and d) establishment of platforms to enhance stakeholder relations between role players like universities and TVET colleges, provincial and national government, industry green skills partners and green skills partners in general (South Africa. DHET, 2013a). The NSA's role in monitoring these accurately is crucial to further development of the green skills systemic response in South Africa. In the event where the NSA has experienced capacity constraints to effectively advise the Minister of Higher Education and Training and the NSF on national green skills funding, both the DHET and the NSF have the responsibility to ensure the provision of the needed budget allocations.

Clearly, the leadership roles of both the DHET and the NSA as important national green skills funding components become critical in enhancing the NSF's responsiveness to green skills.

These strategic roles are emergent, strategic and find resonance within the skills development matrix of the South Africa's skills levy funding system. Hence, a critical reflection on the skills levy funding system is provided, with special reference to the NSF and green skills.

5.4 Emergent forces: The skills levy funding system under the spotlight

According to the White Paper for Post-School Education and Training (South Africa. DHET, 2013a), levy-grant institutions regulate funding emanating from employers with the purpose of using the funds for the training and development of staff or employees and toward South Africa's skills development priorities. Part of the core responsibility is also to do planning based upon the skills needs of their respective economic sectors. South Africa's two levy-grant mechanisms are the 21 Sector Education and Training Authorities (SETAs) and the National Skills Fund (NSF) (see Appendix D for List of 21 Sector Education and Training Authorities).

The White Paper for Post-School Education and Training (South Africa. DHET, 2013a) further indicated that, due to the numerous challenges with the current skills levy-grant system such as "duplication", "incoherence", "inconsistency" and malfunctioning across much of the system, the temptation exists to start from scratch, but this is not necessarily the best option. It is a massive challenge to build new institutions from scratch. Change is inevitable. The best way to deal with all these challenges in the skills levy-grant system is probably to build on existing strengths and towards strengthening the system internally, advancing forward.

The White Paper for Post-School Education and Training (South Africa. DHET, 2013a) stated that it is the responsibility of the DHET to strengthen these institutions and to ensure that they function according to their respective mandates toward a well-coordinated post-school system.

Furthermore, in order to relay some of the latest developments and issues pertaining to the current review process of the skills levy-grant system, the recent OECD Review on vocational education and training entitled 'A Skills beyond School Review South Africa' (OECD, 2014), the Human Resource Development Council's Skills System's Review (HRDC, 2013), the White Paper for Post-School Education and Training (South Africa. DHET, 2013a) and the National Skills Development Landscape Proposal (South Africa, 2015) become central to the discussion. The Skills beyond School Review (OECD, 2014) on vocational education and training is the product of a joint collaboration effort between the OECD and South Africa's Department of Higher Education and Training (DHET) .

According to Government Gazette No. 39386 of 10 November 2015, relating to 'A call for public comments on the new NSDS and SETAs landscape' all inputs should take the OECD review report on vocational education and training: 'A Skills beyond School Review' (OECD, 2014), the HRDC's Skills System's Review (HRDC, 2014), and the White Paper for Post-School Education and Training (South Africa. DHET, 2013a) into consideration. Hence these strategic documents will constitute the basis for the following discussion.

The OECD Review (OECD, 2014) and the DHET (South Africa, 2015) noted the following major challenges in terms of the current levy-grant system: a) internationally, experiences with regard to levy-grant systems have proven not to be very encouraging or constructive; and b) the current sector education and training authority (SETA) organisational or sector model provisions have numerous complications and challenges, for example, high administrative costs and questionable support from industry sectoral bodies.

The NSF (2015a) and OECD Review (OECD, 2014) stated that South Africa's levy-grant is primarily disbursed through sectoral SETAs. The OECD (2014) report cites that the levy-grant system is the funding mechanism for levy-grant institutions like the SETAs and the NSF. Where the gross wage bill of employers surpasses ZAR 500 000 per annum, it becomes mandatory to pay 1% constituting a skills levy towards the development of skills in the country. The OECD (2014) reports claimed that levy revenue has increased significantly from ZAR 1 258 million in 2000 to ZAR 11 378 million in 2013. South Africa has 21 SETAs to administer 80% of the total accumulated skills levy. The NSF receives 20% of the levy funding, of which 18% is provided to fund programmes and the South African Revenue Services receives 2% for their collection facilities. A breakdown of the 80% transferred to SETAs is as follows: a) discretionary grant equals 49.5%; b) mandatory grant equals 20%; and c) administration costs equal 10%.

According to the White Paper for Post-School Education and Training (South Africa. DHET, 2013a), government departments are not under any obligation to pay the skills levy but are required to set 1% aside for their departmental training needs, of which 10% goes to the appropriate SETA to cover administrative costs. SETAs are overseen by governing boards, chaired by an independent person, six representatives of employers, six labour representatives and two from interested professional bodies. All these selections are reserved for approval by the Minister of Higher Education and Training upon advice from the sector (South Africa. DHET, 2013a).

The White Paper (South Africa. DHET, 2013a) and the OECD Review (2014) indicated that SETAs are established in 21 economic/industrial sectors. The Department of Trade and Industry (DTI) also defined an industrial sector according to its own sense-making strategy. The sector definitions of the DTI are not determined in the same way as the levy-grant sectors are determined, although there may be some similarities.

SETAs are currently disbursing both discretionary and mandatory grants. Sectoral needs as identified by the sector skills plans are supplied by the discretionary grant. Of the discretionary grant budget, 20% is committed to the roll-out of the skills priorities as identified by the National Skills Development Strategy. The rest of the discretionary budget, which totals 80%, is committed to what is called pivotal grants. Historically, SETAs were also disbursing agents for the NSF. The mandatory portion of the budget is made available to employers based upon the effective submission of workplace skills plans and annual training reports (South Africa. DHET, 2016; OECD Review, 2014).

The OECD Review (2014), drawing on the Human Resource Development Council (HRDC) Skills Review (HRDC Review, 2013), states: “Levy systems to support training are typically designed to correct market failures”. Furthermore, it is generally recognised that systems designed to fund training through levies on employers are commonly planned to correct market failures, for example, the fear of workplace poaching. Hence the levy grant system is basically envisioned to systematically reduce the risk of underinvestment in training (OECD 2014, p. 79).

More specifically, companies are encouraged to facilitate in-service training. Workplace training is therefore duly incentivised. Workplace training exposure can be either in the form of on-the-job training or training at a venue external to the workplace. Levy-grant systems are justified in the face of limited amounts of qualitative company training (OECD, 2014). Levy-grant schemes are evident globally, with France and New Zealand being examples of countries implementing such schemes. Other countries that are also making use of the levy-grant model include transitional countries, such as Hungary, and developing African countries, like Zimbabwe and South Africa. In Asia, countries like Malaysia and Singapore also implement the levy-grant model. Despite a number different variations in terms of planning and implementation, Gasskov’s threefold classification has been widely accepted in this respect: a) cost-reimbursement; b) cost redistribution; and c) levy exemption (HRDC Skills Review, 2013; OECD Review, 2014).

According to the HRDC Skills Review (HRDC Review, 2013) and the OECD Review (2014), businesses and companies receive grants disbursed by the training fund on a cost-incurred basis for chosen training interventions. This could be on-the-job or off-the-job training initiatives. In cases where businesses and companies do train according to due standards, part of the skills levy-grant is returned. In other cases where companies do not train according to due standard, penalties are enforced by loss of levy. However, in some instances reimbursement is determined below the value of the levy paid to cover administration fees; Nigeria has been cited as a good example of this practice (OECD, 2014).

The OECD Review (2014) stated that the aim of this practice is the redistribution of the responsibility for expenditure among commercial businesses. In the final analysis this system redistributes funds toward those companies that train personnel and away from businesses that do not train. Due to the importance placed upon the redistribution of cost burdens, it becomes highly possible that businesses obtain grants additional to the amount of levy paid. This practice results in a highly incentivised training system. A good example of a country using this model is Mauritius.

The levy mechanism is usually part of the bigger cost-reimbursement system. In this particular case, well-performing businesses in terms of training standards, are exempted and are allowed to withdraw from the levy-grant system or at least to benefit from reduced levy assessments relative to training investments. A general advantage of this practice results in a situation where businesses are unrestricted from administrative lethargies of levy payment. Another benefit is the fact that businesses are also freed from grant claim delays, bottlenecks and potential cash flow challenges. Bureaucratic red tape is easily evaded. An example in this regard is Côte d'Ivoire (HRDC Review, 2013; OECD Review, 2014).

The OECD review report (2014) asserted that the main focus of the levy mechanism model is the support of training by the public sector. This could be done either via the State or a national training authority. Initial training at formal public institutions is duly emphasised. Examples of these schemes can be found in countries like Latin America and the Caribbean countries.

According to the HRDC Review (2013) and the OECD Review (2014), in the case of universal levies, arguably most of the training benefits go to large firms and highly skilled employees, such as in the case of countries like France. It could also be possible for levy-grant systems to function at sectoral level. A good example of this practice is the Construction Council in the

UK. Interestingly, in the UK, training levies were introduced in the early 1960s, but in the 1980s, numerous levies were abolished with the exclusion of those in the construction and engineering fields which apparently showed better performance. Despite the good intention of the levy-grant system to inspire greater involvement of businesses in training, the effectiveness thereof is highly debatable. However, it may be worth looking at the Singaporean Skills Development Fund as an example of a best case scenario (OECD Review, 2014).

The Singapore Skills Development System makes provision for employers to contribute at a rate of 0.25% towards the skills development levy for all workers, be they full-time, part-time, temporary or foreign workers. The levy contribution is directed into a skills development fund. Businesses apply to the fund for reimbursements in line with their training programmes. There are two kinds of incentives available: firstly, they can receive funding from a skills development fund; and secondly, they can receive reduced tax rates relative to contributions to the fund. The OECD Review (2014) cites that around the mid-1980s, 21% of Singapore's workforce received training in this fashion and most of the large and medium sized companies have benefited from this system.

The factors contributing to the success of the Singapore model are as follows:

- a) There is a strong relationship between economic progress and skills formation. Singapore has a dedicated structure to this effect, i.e. the Economic Development Board (EDB), which functions with dedicated responsibilities in both areas.
- b) The EDB system was able to produce a model for technology transfer. This model can connect together the following three key aspects: i) foreign direct investment, ii) skills development plans, and iii) public-private partnerships for training. This model brought about a situation where Singapore was able to meet their short and medium-term skills development needs.
- c) Singapore's educational system was inevitably placed on track for reformation towards a long-term skills development orientation.
- d) The levy-grant system caters for private sector firms to invest in up-skilling.
- e) A strong coordination function exists between institutions and providers. This function ensures the effectiveness and relevance of up-skilling programmes. (HRDC Review, 2013; OECD Review, 2014)

Before looking at the gaps or weaknesses of the SETA model arrangement, I will first provide an account of what the SETAs are responsible for according to their legislative mandate.

With the dawning of the Skills Development Act in 1998, SETAs assumed the following responsibilities: a) the development of sector skills plans (SSPs) in line with the National Skills Development Strategies (NSDSs). SETAs must ensure that SSPs are implemented through the establishment of learning programmes, approved workplace skills plans and annual reports; b) the allocation of grants in accordance with the relevant regulations, as well as monitoring and evaluating the delivery of skills training provision in the sector; c) encouragement of education and training programmes by identifying workplaces for practical workplace exposure; d) SETAs must support the development of education and training programmes, advance the enablement of education and training, and assist in the finalisation of learning agreements, e.g. learnership agreements; e) facilitate and oversee the registration process of education and training programmes; f) Quality Council for Trades and Occupations (QCTO) may delegate functions to SETAs. SETAs must be able to perform these functions as and when delegated by QCTO; i) responsible to submit budgets, financial statement reports, strategic plans and reports on implementation, based upon service level agreements, to the Director General of DHET; j) SETAs must link with applicable educational institutions or professional bodies established under law and regulating education in South Africa to advance information about placement opportunities; k) establish a relationship between education and skills development providers and the labour market; l) provide support to TVET colleges and higher education institutions; and m) implement government-wide and sector-based strategies (South Africa. DHET, 2013a; HRDC Review, 2013; OECD Review, 2014).

All the efforts to ensure a skills levy system that is effectively responsive to a changing skills development landscape inherently imply the identification of shortcomings. The White Paper for Post-School Education and Training (South Africa. DHET, 2013) and the OECD Review (2014) assisted in identifying the following gaps in South Africa's SETA model (discussed below).

SETAs have been criticised as ineffective and unrepresentative of business – the OECD Review (2014) and HRDC Review (2013) posited that with the establishment of the SETAs way back in 1998, the core ideal was to forge a collective between employers and organised labour in sector-specific formations to identify labour market needs and enable skills development. In terms of value for money, this situation remains unconvincing, given the difficulties as indicated in numerous reports (HRDC Review, 2013; OECD, 2014). This is clearly a huge amount of money. The performance of SETAs is also severely under pressure

because of issues of mismanagement and a number of SETAs had to be taken over by DHET and directly managed due to these and similar challenges. There is also a strong perception that many SETAs are not really representative of employer bodies and organised labour (OECD, 2014; HRDC Review, 2013).

SETAs seemingly support periods of training. They mainly fund private colleges or training providers whose commitment towards genuine workforce skills development is highly questionable (HRDC Review, 2013). Moreover, huge financial commitments have been made for short course skills development programmes. On the one hand, such skills programmes can easily be completed and certified in less than one year. On the other hand, occupationally-directed programmes like learnerships, as well as bursaries and internships are better linked with qualification-orientated programmes. The duration of the latter type of programme is usually a year or more for completion and certification. During the 2011/12 financial year, 82 000 workers were certified through SETA processes. More than 70 000 (90%) completed and were duly certified for skills programmes. Only a small portion of the grant funding went towards the more formal occupationally-directed programmes such as learnerships, bursaries and internships. Moreover not many resources were utilised to support education and training in the public sector in universities and colleges (HRDC Review, 2013; OECD Review, 2014).

The performance of the 21 different SETAs differs significantly. According to the OECD Review (2014), during the 2011/12 financial year, one SETA had, for example, four available opportunities for skills programmes while another had 22 000 places. In the same financial year only four SETAs could show evidence of learners enrolled in internship training programmes. In terms of training provision for learnerships and bursaries, variation is strongly evident, for example only three SETAs focussed on more or less 40% of the total of unemployed beneficiaries enrolled towards learnerships. However, engagements with stakeholders reveal that the variable performance of SETAs could partly be ascribed to the relative size and organisational capacity of SETAs (South Africa. DHET, 2013a; HRDC Review, 2013; OECD Review, 2014).

I agree with the insight coming from the stakeholders: to compare SETAs to such an extent defeats the original purpose of why they were established in the first place. There will be differences, but to what extent the variance manifests is a subject for investigation and could be further ascribed to the unique sectoral and environmental contexts.

Bureaucracy might decrease effective participation in the mandatory grant process. In respect of the ability to access the mandatory grant, about 20% of the total skills levy might be affected, and companies must provide workplace skills plans and annual training reports. The expectations pertaining to the anticipated standards and requirements of these documents require the involvement of employees, facilitators and the direct capacity building role of SETAs. These processes and procedures have been flagged as extremely cumbersome and loaded with bureaucratic red tape. Due to the tediousness of this exercise, about two-thirds of eligible companies are unable to access this offer. Among the 51% of all eligible employers only 16% were able to claim grants effectively. This explains the reason why many funds remained unspent and unutilised (South Africa. DHET, 2013a; HRDC Review, 2013; OECD Review, 2014). This situation was also noted by respondents in the field; Respondent 4, for example, lamented and confirmed that the skills levy system was vulnerable to abuse as follows: *“Unfortunately, the skills levy has been seen as an alternative. We need to reposition the grant system to compliment. Otherwise, the levy grant is seen as a reserve fund by other DHET stakeholders.”*

Furthermore, the White Paper for Post-School Education and Training (2013) mentioned the following challenges regarding the SETA model: a) the performance of SETAs has not met the expected standard; b) an unclear mandate; c) inadequate capacity to respond effectively in terms of skills planning to address the challenge of being able to identify and articulate skills needs; d) the process of quality assurance is far too complex; e) no clear evidence ensuring quality assurance of training interventions in the various sectors; and e) number changes are underway for example the appointment of new boards, new constitutions, new National Skills Development Strategy, new five-year licensing period.

The White Paper for Post-School Education and Training (South Africa. DHET, 2013a, p. 67) mentioned the following challenges relating to SETA governance arrangements: a) dim organisational focus and multiple objectives; b) inappropriate governance and operational role and responsibilities; c) fragmented strategic sector planning, research capability, operations management, administration and financial management across SETAs; d) weak monitoring and evaluation and inadequate management information in the SETA system; e) inadequacies in the work planning, service delivery and performance management across SETAs; and f) challenges in confronting cross-sectoral skills development and training requirements.

Moving forward, the flow of funding must be reformed towards simpler and more efficient administration. According to the National Skills Development Landscape proposal (South Africa. DHET, 2016), the responsibility for administration of the discretionary grant funding ought to be shifted to the NSF and administration of the mandatory grant should be simplified. If this recommendation is implemented, it could produce huge administrative savings in terms of costs. The roll-out of the discretionary grant should be on the basis of an incentive scheme in favour of supporting the vocational system. The introduction of progressive changes in the mandatory grant trajectory will also decrease the existing bureaucratic complexity in respect thereof (HRDC Review, 2013; OECD Review, 2014).

However, the White Paper (South Africa. DHET, 2013a) for Post-School Education and Training acknowledged that the current SETA landscape and NSDS III were expected to continue till 2016. It noted that a significant restructuring of the skills system may well be required at that time, with a further reduction of numbers over the medium to long term. In the meantime, efforts were to be made to bring about a greater degree of collaboration through the clustering of SETAs. It is noted that both the current NSDS and the SETA landscapes (2011-2016) should be reviewed every five years. These, as noted by the DHET in 2013, are two separate parallel processes that will require extensive consultation (South Africa. DHET, 2013a), which is one of the reasons why the NSDSIII has not yet been replaced with NSDS IV, and why the existing NSDSIII was extended for two years to 2018.

Due to huge administrative costs of SETAs, mismanagement practices and uncertain delivery of outcomes with regard to skills development, change is inevitable. It is also very important that employers should take ownership of skills development funding expenditure (South Africa. DHET, 2013a; HRDC Review, 2013; OECD Review, 2014).

The above-mentioned changes are understandable in the light of extremely significant reviews like the HRDC Review (2013). Why would the OECD Review (2014) suggest that the NSF should assume responsibility for the discretionary grant, because the NSF only receives 18% of the skills levy funding? The amount of 18% is determined by the Skills Development Act (SDA), Act 97 of 1998, as amended. I am not convinced that the 18% received by the NSF constitutes a good basis to motivate the redirection of the discretionary grant to the NSF, unless the law is changed in respect thereof or the discretionary grant can move to the NSF in line with the SDA, which makes provision for the NSF to also receive funding from other sources.

Also, before consideration is given to any proposed shift of the discretionary grant to the NSF, organisational due diligence should be a precondition.

The following emerging tendencies are noticeable on the new NSDS IV horizon. This new direction has been signalled by the HRDC Review (2013), the OECD Review (2014) and the National Skills Development Proposal (DHET, 2016). The first proposal is centralisation of the administration of the discretionary grant – the idea is to centralise the administration of the discretionary grant under the auspices of the NSF. This scenario will result in a situation where the SETAs will only administer the mandatory grant. It is further supposed that this could result in huge administrative savings. Moreover, the proposal is that the discretionary grant should be administered subject to the advice of the SETAs and employers. This means that they will have to motivate why funds are needed and for what purpose. This will ensure that all stakeholders provide buy-in as a collective, moving forward towards the strengthening of the vocational training system. Work-based learning opportunities are cited as positive spin-offs emanating from this partnership arrangement. Employers will not feel left out of this process because they will guide the process since the funds come from their pockets and the partnership model provides for active employer participation through workplace training and exposure (South Africa. DHET, 2013a; HRDC Review, 2013; OECD Review, 2014).

The **partnership model** is envisaged, according to which the commitment of funding flows via a dynamic relationship between industry or employers and vocational education and training providers. Internationally, this has become a dominant feature in best case practices (OECD, 2014). Two international examples in this regard are: a) the Swedish system of higher vocational education, and b) the ‘blueprint’ proposals for the reform of the federal funding system in the United States. Similar tendencies are evident in the Netherlands and England where government funding is not automatically provided for sectoral bodies but preference is given in support of employer groups forming joint partnerships with the vocational system in pursuing constructive skills development endeavours (HRDC Review, 2013; OECD Review, 2014; South Africa. DHET, 2013a).

The White Paper for Post-School Education and Training (South Africa. DHET, 2013a) suggested that in order to **simplify the mandatory grant trajectory**, it must be linked to the collection and provision of reliable data on workforce skills emanating from employers. The fact that there is need for a facilitator as an intermediary to assist in accessing a particular grant, implies there are issues with the procedure and process of this grant. Employers struggle to

access grants on their own and are forced to rely on external parties to assist them to access training grants from SETAs due to the bureaucratic complexities involved in the claiming process. Employers are required, once a year, to provide information in a more simplified document on all workplace training, current skills levels, experience and qualifications of employees, including their priority needs analysis (OECD Review, 2014). The purpose is for SETAs to collect this information for skills planning and this should inform better vocational provision (HRDC Review, 2013; OECD Review, 2014).

The DHET proposal for the new NSDS and SETA landscape (South Africa, 2015) attempted to give impetus regarding the policy indications relating to the role of SETAs and the NSF within an integrated and differentiated post-school education and training context. The emphasis is on improved coordination, workplace preparation support and a revised skills levy distribution approach that tries to shift towards the following: a) the strategic focus of SETAs ought to be refined more specifically to enhance greater understanding of skills demands and supply; b) a greater emphasis is placed on making the notion of ‘occupations’ more central to skills discourses within the contexts of workplaces and education and training institutions; c) a shift in the skills levy distribution model from a divergent model that is sector specific to a more convergent approach which is more centralised, constituting a cross-sectoral funding model that is nationally driven; d) NSF is to assume greater funding management responsibility to ensure better coordination across sectoral needs; e) the emerging NSDS IV will be occupations oriented; f) DHET will assume the central skills planning role in the country; g) the NSA will focus on capacity requirements and monitoring and evaluation to strengthen the PSET constituency; and h) building sufficient strength among government departments to ensure integration of sectoral strategies.

Based upon the aforementioned discussion, it becomes apparent that the HRDC Review (2013), OECD Review (2014) and the National Skills Development Landscape Proposal (South Africa, 2015) embodying the aims of the White Paper for Post-School Education and Training (South Africa, DHET, 2013a) have all significantly contributed to shaping the emerging skills development levy system and particularly emphasise a more strategic role for the NSF. This necessitates a closer look at the implications for green skills from a national funding perspective.

5.4.1 Implications for national green skills funding

Firstly, some of the studies done on the skills levy system have been marginalising the contributory role of the NSF. The main emphasis is placed on the role of SETAs, and clearly, as outlined in the analysis above, they are not spared the brunt of intensive scrutiny. The NSF emerges in most reports as a funding saviour. Greater responsibility is placed upon the shoulders of the NSF, despite its earlier difficulties described above. It is obvious that confidence in the NSF is increasing in terms of its role and responsibility as a key player in the post-school education and training system. Seemingly, more funds might be coming the way of the NSF. This means that the NSF must assume not only greater responsibility but also more accountability especially when it comes to national green skills funding (South Africa, 2015; OECD Review, 2014). Respondent 6 emphasised the NSF's multi-stakeholder engagement responsibility in this statement:

Before you make a deal through contracting there is a lot of planning needed and required. To make this whole story work, all funding stakeholders e.g. SETAs must come on board. Coordination, cooperation and collaboration ... Policy and strategy must be aligned toward the same direction. The NSF was always part of the PSET system.

According to the White Paper for Post-School Education and Training (South Africa. DHET, 2013a), the way in which SETAs and NSF make grants available determines what kind of organisational role is assumed. In the case of SETAs, one school of thought suggests that SETAs provide grants which are claimed by employers, for example, discretionary or mandatory grants to implement workplace skills plans. The claim process is incentivised (OECD, 2014). The other school of thought (OECD, 2014) suggests that SETAs should promote sector skills initiatives, making them available to employers but also project-managing them on behalf of employers. The first approach is more suitable and preferred by larger and better established employers and initiatives than the latter (South Africa, 2015; HRDC Review, 2013; OECD Review, 2014). This clearly creates opportunities to access grant funding in pursuit of satisfying sectoral needs such as those in the area of green skills demands. The latter allows for smaller scale sector-based engagement with green skills agendas, much as is currently the case with green skills and SETA engagements as reflected in the current Green Skills system building programme (Green Skills Project, 2015) where efforts are being made to articulate green skills demand sector-by-sector in partnership with SETA researcher teams.

Lastly, the NSLP (South Africa, 2016, p. 10) states the following in trying to give embodiment to the integrative intentions of the White Paper for Post-School Education and Training, specifically emphasising convergence as a determining feature:

This represents a fundamental shift. No longer must the NSDS, or its implementing agencies, the SETAs, the National Skills Fund (NSF) and the QCTO, be seen as separate from the colleges and universities as was the case in the past. Going forward they must be seen as complementary institutions, enabling learners in the learning institutions to seamlessly progress to workplaces and enabling workers to return to institutions of learning in ways that enhance economic growth and social development of the country. (South Africa. DHET, 2016, p. 10)

This notion charts the course for an expanded education and training system that is comprehensive, fully responsive and inclusive of the expectations emanating from the green skills agenda. What makes this notion even more profound is the implicit strategic intention not only to focus on economic growth but also to emphasise the ambience of social development. This includes a greater awareness of taking care of the environment and sustainable skills in respect thereof, a focus that is also being promoted by green skills researchers as outlined in Chapter 3, and the global sustainable development goals, which South Africa signed up to in 2015.

5.5 Conclusion

In summary, this chapter has separated and analysed key components of the post-school education and training system in the leadership roles of: a) the DHET as the custodian of the post-school education and training system, and b) the NSA, emerging as an advisory and monitoring and evaluation body. Substantive research evidence was produced to show the significant influence on the responsiveness of the NSF in relation to green skills funding. It is noteworthy that the skills levy system is under review, and this initiative holds important implications for the process of renewal towards greater awareness of national green skills funding. The next chapter introduces a further in-depth examination of the NSF from an abductive policy analysis perspective.

CHAPTER 6

NATIONAL GREEN SKILLS FUNDING RESPONSIVENESS: INSTITUTIONAL COLLECTIVE ACTION DYNAMICS

PHASE 3: POLICY ABDUCTIVE REVIEW

6.1 Introduction

ICA dilemmas arise directly from the division or partitioning of authority in which decisions by one government in one or more specific functional area impact other governments and other government functions. (Feiock, 2013, p. 397)

The citation above captures the fundamental essence of the dimensions of the policy dilemmas faced by the NSF in its key area of function, namely grant-making, as also explicated in some detail in the previous chapters. The policy decisions promulgated by the strategic components identified in the previous chapter, such as DHET, directly affect the NSF's funding responsiveness because of the fund's strategic location and function within the policy matrix of the DHET's post-school education and training system (NSF, 2016a).

This claim resides at the heart of the chapter and is further substantiated to show the relevance of Feiock's (2013) ICA framework as an appropriate response mechanism. The chapter attempts to respond to the fourth sub-research question, namely: *How can a better understanding of the NSF's grant-making dynamics from an Institutional Collective Action (integrated) perspective support responsiveness of the NSF's grant management system to emerging green skills?*

In dealing with the question, the chapter firstly expands on the funding policy dilemmas facing the NSF according to the ICA framework, namely a) horizontally – conflict of stakeholder interest; b) vertically – conflict of competitive interest; and c) functionally – conflict of policy interest. These three dimensions relate directly to Feiock's (2013) ICA levels of policy dilemmas. This discussion specifically relates to the NSF's organisational debate, for example, public entity versus departmental programme. Secondly, the chapter considers dynamics around grant-making in terms of the nature thereof and emerging trends. Lastly, a discussion unfolds around the ICA response mechanisms as possible alternatives to resolve the nagging policy dilemmas, with the aim of selecting the best possible mechanisms from an institutional collective action response mode. Feiock (2013) suggested nine types of mechanisms, namely contracts, mandated agreements, working groups, partnerships, multiplex-self organising

systems, informal networks, constructed networks, councils of government and centralised regional authorities to be considered when dealing with ICA dilemmas. Each type will be explained broadly, under the relevant grant-making phase, to show the relevance thereof and to motivate why some of them might assist the NSF in responding to the funding dilemmas faced by the NSF.

In the light of the multi-stakeholder nature of green skills development, Feiock's (2013) ICA framework emerges as a compelling abductive policy analysis instrument for this study. As explained in Chapter 3, Danermark et al. (2002) suggested that abductive analysis attempts to explain and re-describe components, for example, the NSF's grant-making function as a policy response mechanism in the light of conceptual frameworks. Bhaskar (2010) also recommended the use of theories and wider literature in our quest to explain research objects better. In this chapter, which constitutes Phase 3 of the QPAF analysis, Feiock's (2013) Institutional Collective Action (ICA) Framework is used to address the NSF grant-making function in relation to the question of green skills *as a policy response mechanism* as this appears to be suitably relevant (see Chapter 1 and 2 where this framework was introduced). Also, the ICA framework offers significant insights into the nature of the policy dilemmas confronting the NSF as one of South Africa's premier skills development funding agencies and elucidates possible mitigating mechanisms in the quest of resolution to some of the emerging challenges which were also outlined in the previous chapters, but which are synthesised and deliberated further in this chapter. It also offers substantive theory that assists with the development of immanent critique within the wider critical realist meta-theoretical framework guiding this study, as mentioned in Chapter 2.

6.2 NSF's funding policy dilemma

According to Feiock (2013), ICA dilemmas occur when authority is divided through governmental decision-making processes, where the impact thereof is manifested in another governmental domain. The NSF funding dilemma arises from what Feiock (2013, p. 397) called "delegation of service responsibilities" due to the funding agency's reliance on service providers to deliver on its organisational mandate, namely the skills development interventions.

The NSF as a funder provides funding for skills development interventions. It cannot therefore also assume the core role of implementer, as was also pointed out in the Deloitte (NSF, 2009) report. For this reason, the NSF solicits the services of skills development providers. These stakeholders do not always have the capacity to deliver effectively on approved projects in line

with agreed objectives and timeframes. Hence all proposals submitted to the NSF must be duly evaluated to ensure quality assurance (NSF, 2013a; NSF, 2016a). Although the NSF has its own organisational deficiencies, stakeholders also underperform and underspend, relating in escalation of ‘transactional costs’. The reason for this is that, for the NSF, the risk is very real that external stakeholders may lack sufficient skills to implement projects successfully (NSF, 2013a). Drawing on the Feiock (2013) framework, it is possible to identify the following dimensions of the NSF’s grant-making dilemma: horizontal, vertical and functional.

6.2.1 Horizontal dilemma: Conflict of stakeholder interests

The NSF as a funding agency does not have the full capacity to design, initiate and implement its own projects. The fund therefore becomes dependent on training providers to assist in the achievement of its strategic mandate (NSF, 2013a; NSF 2016a). This co-dependency, according to Feiock (2013), confronts the NSF with a policy dilemma. This is because the NSF is dealing with external organisations, which produce associated collaboration risks. Clearly, the span of control of the NSF is stretched beyond its normal boundaries of authority in terms of jurisdiction. Feiock (2013) perceived this dilemma on what he called a ‘horizontal level’ (Andrew & Kendra, 2012; Andrew, 2009; Feiock & Scholz, 2010). See Feiock’s (2013) statement below emphasising the externalities as a result of co-dependency on external stakeholders:

A horizontal collective action problem arises if the governments are too small (or large) to efficiently produce on their own a service each government wishes to provide, or if production of the service produces externalities that spill across jurisdiction boundaries. (Feiock, 2013, p. 391)

In the NSF’s case, these training provider partnerships manifest in the form of formal contracts as a result of a process of project grant-making. The NSF provides mainly for two grant-making approaches, namely proactive grant-making (formal) and reactive grant-making (informal). According to the NSF Strategic Funding Framework (2013a), NSF Grant Disbursement Framework (NSF, 2015b) and NSF Operational Manual (2014), the NSF first proactively solicits the services of prospective training providers through a formal ‘Request for Proposals’ (RFPs) process. Secondly, a reactive approach is provided where training providers can submit project proposals at any time as long as proposals address the strategic funding imperatives of the NSF. Feiock (2013) inferred that challenges surface when the business requirements of government, in this case the NSF, produce externalities resulting in co-dependencies. Respondent 4 confirmed the NSF’s dependency on training provider partnerships as follows:

“The NSF relies on requests from providers. The NSF has the opportunity for itself to define priorities. I don’t think this has been effectively used”.

The following statement by Feiock (2013) offers further insight with regards to the key dimensions of an ICA dilemma which is relevant to the NSF’s national skills delivery mandate:

In most general terms, the problem is how to provide and produce a multitude of public goods and services that have different economies of scale and that are demanded by citizens at different levels of quantity and quality. (p. 391)

The NSF Grant Disbursement Framework (2015b, see Figure 6.1 below), illustrates the multidimensional nature of the NSF’s horizontal dilemma as depicted according to the dimensions of the fund’s value chain (NSF, 2015b). This value chain is soaked in collaboration risk emanating from stakeholder externalities.

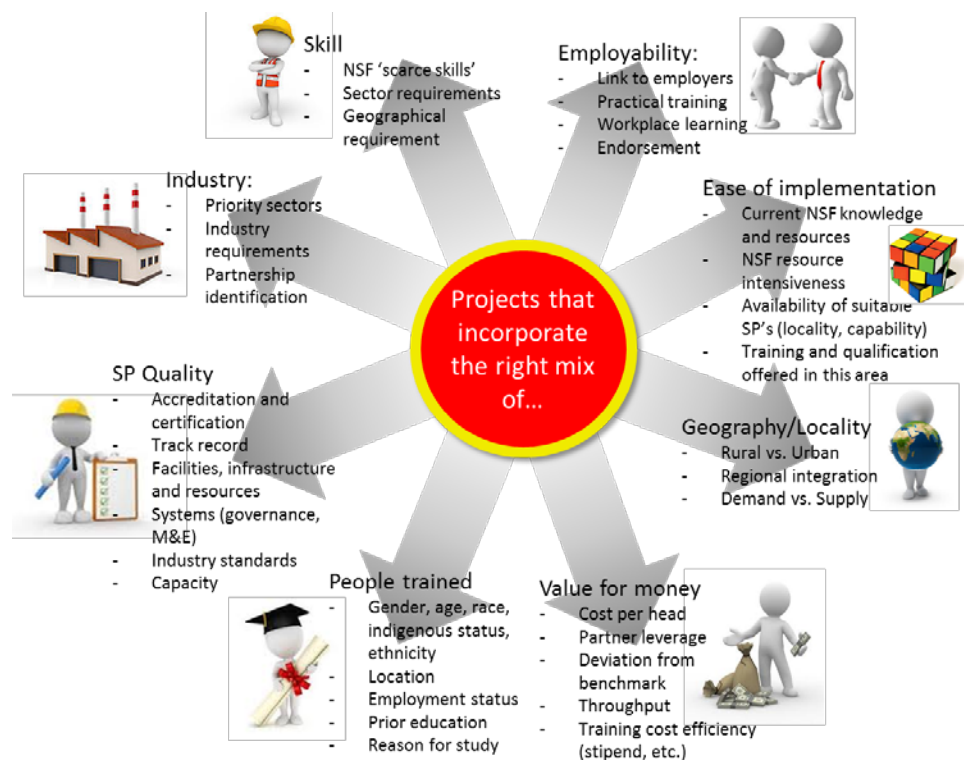


Figure 6.1 NSF grant-making project value dimensions (NSF, 2015b)

The following reflection by Respondent 8 identified the ‘deadweight effect’ as a serious risk for grant-making. He reflected upon his experience with the NSF during his organisational leadership tenure as follows:

The implementation of the strategic projects also provided valuable lessons (positive and negative). It demonstrated the potential of facilitating meaningful impact if there is alignment with government priorities, i.e. Provincial Government Development Strategies (PGDSs) of provincial governments and sector plans of SETAs. On the

negative side, it highlighted some of the strategic risks related to collaboration/dependency on ‘others’ to deliver on your brief as a funder including lack of capacity by partners to implement projects, inability to effectively extract and convert training needs into plausible funding proposals, as well as ‘deadweight effect whereby instead of ‘additionality’, beneficiaries could potentially just use your funding to replace their own training budgets, and shift the same to other budget items.

Moreover, while the NSF pursues its mandate to respond to national priorities through the function of grant-making, it should ensure a commitment to the principles of being fair, equitable, transparent, competitive and cost-effective as enshrined in the Constitution of South Africa (1996; NSF, 2013a.). It is within this domain where stakeholder interests in the NSF’s funding resources become competitive and confront the NSF with another possible dilemma.

6.2.2 Vertical dilemma: Conflict of competitive interests

This kind of dilemma, according to Feiock (2013), displays tendencies of competing interests. In the case of the NSF and green skills funding, on the one hand, the NSF functions under the auspices of DHET and is responsible to fund key national priorities like green skills towards stimulating the green growth in South Africa. Likewise, on the other hand, the Green Fund functions under the auspices of the DEA and carries a similar mandate, although the Green Fund specifically is called upon to respond to green skills and the green economy as discussed in Chapter 3. According to Feiock (2013), a vertical dilemma exists when role players at different planes of government chase similar policy aims concurrently.

- ***The Green Fund’s green skills interest***

The Green Fund is a funding mechanism funded and managed by the Development Bank of South Africa (DBSA) under the auspices of the Department of Environmental affairs (DEA). This initiative is the result of the South African government allocating ZAR 800 million to pioneering seeds of investment to establish a fund that will catalyse funding potential to meet the labour and skills demands of the green economy sector. At the core of the Green Fund’s mandate is the funding of capacity building interventions in support of South Africa’s transition to a more sustainable green economy reality. An oversight committee structure comprising of representatives from DBSA, DEA and the office of the National Treasury assume decision-making powers to guide the institution (DEA, 2013).

The fund aims to achieve three goals, namely: a) supporting environment policy objectives through green interventions; b) construction of an evidence base for the growth of the green

economy; and c) sourcing added resources for provision of South Africa's green economy development (DEA, 2013).

- ***A green skills funding response: Green Fund's National Environmental Skills Planning Forum (NESPF) project***

The DBSA's Green Fund has recently (2014-2016/17) funded a multi-partner programme of the National Environmental Skills Planning Forum (NESPF) which is led by Rhodes University to assist with the building of national skills system capacity development for green skills planning and analysis. Its scope pertains to the dimensions of supply, transitioning and demand analysis instruments. This programme is envisaged to run over a three-year period and obtains a relatively small amount of funding from the DBSA (ZAR 6 million) in total (as shown in Table 3.1 in Chapter 3). Significantly, the project has organised itself around the following four work packages, namely a) capacity to coordinate; b) capacity for analysis and planning; c) capacity for unlocking green jobs; and d) capacity for accessing green jobs (NESPF, 2014). However, it should be appreciated that the funds allocated by the Green Fund to skills system building are very small for supporting a national process such as skills development system building. To date, the programme has leveraged an additional ZAR 2 million in cooperative funds from the SETAs for small-scale green skills studies, but overall the initiative appears to be severely underfunded for the work that is required to develop capacity for green skills research and planning and also for developing instruments for more reliable skills forecasting and demand analysis, as well as national coordination of the green skills mandate.

According to Hattingh (2014), the South African government has recognised the importance of the catalytic role of research in constructing a knowledge economy. Over ZAR 30 million's worth of grants have already been made available for research and policy development to universities, government-affiliated institutions, private companies, non-governmental organisations and other interested organisations to support green economy research.

- ***The NSF's green skills interest***

The NSF's relationship with green skills projects started during the early implementation initiatives of NSDS I (2001-2005) and NSDS II (2005-2010) (as reported in Chapter 3), however, at that time, the funding in this area was not necessarily categorised or labelled as green skills projects because awareness thereof was not yet fully conceptualised. An example of such a project funded by the NSF is the 'Integrated Nature-based Tourism and Conservation

Management Development (INTAC) project’. This is a National Skills Fund (NSF) funded project in partnership with the then THETA, i.e. the Tourism, Hospitality and Sport Education and Training Authority, which is the SETA established under the Skills Development Act No. 97 of 1998 for the Tourism, Hospitality and Sport economic sector (NSF, 2005; Interview Respondent number 8, April 2016).

In line with the objectives set out by THETA, INTAC was appointed as a training provider to oversee and manage skills training in the fields of nature-based tourism and conservation management. The project aim was to up-skill learners within these fields at selected project sites throughout the country (NSF, 2005). The NSF committed a total of ZAR 108 million to the INTAC project.

The investment in skills development was to focus on areas where South Africa’s wildlife estate was being expanded, e.g. trans-frontier conservation and the expanding National Parks system, as well as on areas in which nature-based tourism potential was being developed. This joint funding venture contributed towards some of the following objectives: a) develop the skills of workers in the sector; b) increase the levels of investment in education and training in the tourism and hospitality sector; c) encourage employers in the sector to train their employees, provide opportunities for work experience, employ new staff and encourage workers to participate in learnerships and other training programmes (NSF, 2005b).

- ***A green skills funding response: NSF’s SARETEC project***

Recently, during the NSDS III period (2011-2016 extended to 2018), the NSF has continued to make green skills investment sporadically integrated as small components of existing projects. However, the NSF’s most notable recent contribution to date has been towards the renewable energy sector. According to Respondent number 10, the commitment of the NSF in this regard is evident with “*the launch of a ground-breaking project in 2014, as part of the NSF’s infrastructure development commitment of a world-class renewable energy training facilities for the South African Renewable Energy Technology Centre*” (SARETEC), housed at the Cape Peninsula University of Technology to the value of ZAR 105 million. The birth of the SARETEC project signalled the first of its kind in South Africa and is the NSF’s biggest, if not the country’s largest, single project skills funding investment to date. The SARETEC response unfolds on the bedrock of slow economic growth, high poverty and inequality levels (NSF, 2013b). Respondent 2 also commented on the significance of the SARETEC project’s

contribution noting the importance of the investment as “*infrastructural provision for theoretical, practical and workplace green skills learning interventions*”. Also, Respondent 10 stated: “*The SARETEC project was conceptualised by national policy documents like Structural Integrated Projects (SIP) 8 and 14, and the Department of Energy plan*”.

Despite the mentioned SARETEC funding commitment shown by the South African government in the area of skills development, delivering on the relevant skills remains a challenge because of the huge demand for energy in the country and the associated search for renewable and alternative options (National Planning Commission, 2012). Therefore the new direction as charted by the White Paper for Post-School Education and Training (South Africa. DHET, 2013a) attempted to capture a new vision and a dream of a skills development system that is more responsive to green economy demands, including the harnessing and cultivation of green skills in the country. The following statement by the former Minister of Higher Education and Training (NSF, 2016c) was loaded with expectation as he commented on the SARETEC project’s green skills significance:

As identified in the New Growth Path, the Green Economy focus is expected to combat the current high unemployment levels and at the same time reduce the country’s carbon footprint. A growing green economy should result in the expansion of production capacity and service delivery, create job opportunities by facilitating up-skilling and re-skilling and contribute to poverty reduction and socio-economic development in the medium and long terms. (p. 16)

The SARETEC project idea emerged as part of a new season of skills development propelled by strategic intent through the White Paper for Post-School Education and Training (South Africa. DHET, 2013a) dispensation. The skills system is expected to respond more readily to the demand for especially new or emerging skills and not necessarily green skills per se. Note the following statement in the White Paper for Post-School Education and Training, hereby prioritising green skills interests embedded in strategic documents like the New Growth as follows:

National economic development has been prioritised, and the role of education and training as a contributor to development has begun to receive much attention. The National Development Plan (NDP), the New Growth Path and other key policy documents of government have set out important strategies and priorities for development, with an emphasis on inclusive growth and employment generation. It is essential that the post-school education and training system responds to these, especially with regard to expanding the pool of skills and knowledge available to the country; achievement of this goal will enable the expansion of the key economic focus areas and equip young people to obtain work. It may no longer be that skills become a barrier to progressive economic growth and expansion. (p. 2)

The justification for the establishment of such a centre follows from the expected anticipated construction of renewable energy power plants over the next 20 years and the challenges this provides for skills development. The NSF had a three-year contractual commitment to fund the Cape Peninsula University of Technology (CPUT) to establish a renewable energy training centre. The project budget makes provision for 74% of the bulk of the money towards infrastructure development and 7.6% for operational development costs and training costs. Germany, through the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) in South Africa, has committed to sponsoring the 'Train the trainer' training component. A German company has sponsored/donated wind turbines for training (Respondent 10; NSF Internal Report, 2016d; SARETEC Project Plan, NSF, 2014).

Moreover, the prospects of such a project create expectations for employment opportunities and shared economic growth. In addition, the pro-active efforts of the local universities in this field (four in number), that tried to get a training programme established, and to be the home of solar manufacturers, justifies its location in the Western Cape (NSF, 2015a, NSF, 2016d; NSF Respondent no. 10).

The goals of the SARETEC centre are the following:

- a) Ensure that the skills required for designing, building, operating and maintaining world class renewable energy utility scale plants are available in South Africa and adequately serviced by the education and training facilities in the country.
- b) Pioneer the growth of a knowledge-based renewable energy industry in the Southern African Development Community (SADC) and Africa.
- c) Develop infrastructure that would include buildings, laboratory equipment, IT equipment, workshop equipment and fittings as well as furniture.
- d) Develop and coordinate the implementation of both University and TVET College Lecturer development programme to deliver renewable energy learner Programmes.
- e) Liaise closely with the renewable energy industry to support and determine training needs.
- f) Liaise with the relevant Quality Councils to develop and implement renewable energy training occupational and vocational programmes.
- g) Facilitate the placement of learners participating in these occupational programmes (NSF, 2015a).

According to Hattingh (2014), green skills funding is extremely important in responding to the expectations raised by the NDP and the NGP. For example, the NGP categorises the green economy under job driver 3, which states the following: ‘Seizing the potential of new economies’. In respect of this challenge, Hattingh reiterated the importance of funding as follows:

Funding is a fundamental mechanism that flows out of policy commitments. Sources of funding are available through the Green Fund that support green business development and in addition provides support for research and development. (Hattingh, 2014, p. 2)

However, it does appear that both funds (the NSF and the Green Fund) are competing over similar interests. Remarkably, what makes this dilemma even more serious is the fact that the skills mandate according to the Skills Development Act, Act 97 1998, resides with DHET and the DEA assumes custodianship for the green or environmental mandate.

Moreover, greater stakeholder participation and coordination are required from other green skills drivers such as government departments like the Department of Minerals and Energy, Department of Environmental Affairs, Department of Science and Technology, the Department of Trade and Industry and Department of Energy. Industry, SETAs, FET colleges and Eskom are also required by their respective policy mandates to pursue the same green skills policy interest (Ramsarup & Rosenberg, 2015; NSF, Respondent no 10). See the following statement by Ramsarup and Rosenberg (2015, p. 2), who cautioned about the risky implications of the embedded competing interest among green skills drivers:

While it therefore looks as if everyone will be determining and responding to the demand for green skills, the risk is that no-one may do it fully, and that many cross-sectoral skills needs will fall through the cracks.

6.2.3 Functional dilemma: Conflict of policy interests

Functional collective dilemmas emerge when the fragmentation of policy and functions occur (Thurmaier & Wood, 2002; Feiock, 2013). According to Lotz-Sisitka et al. (2013), Rosenberg (2015), and the NESPF (2014) policies and functions pertaining to green skills and the green economy are fragmented across divergent sectors, including the SETAs, and a dire need exists for collective action to properly coordinate policy interventions related to green skills emergence and system building across the country at large. As noted above and in Chapter 3, the Green Fund, in partnership with other key green skills providers like Rhodes University, has recently provided limited seed funding to address the challenge of a lack of integrative,

systematic and adequate green skills capacity in South Africa's post-schooling system, but this funding is hugely limited for the scope and emerging scale of demand for green skills system building (Green Skills Project, 2015).

Further examples from a national green skills perspective of policy fragmentation are noticeable through the different processes emanating from SETAs (sector skills plans) and other green skills role players like the Department of Environmental Affairs (DEA, 2010) producing skills analysis studies and related findings without proper integration into national frameworks of skills planning. This reveals fragmented green skills response options. The huge need for cross-sectoral engagement has been flagged by, among others, the National Environmental Skills Planning Forum Green Skills Project (NESPF, 2014), Green Fund Roundtable Reports (NESPF, 2014) and NESPF's input into DHET's framework report on skills and supply (South Africa. DHET, 2013a). Further evidence is cited by Respondent 3 who stated: *"It's difficult to find integration. The White Paper promises integration. We are still struggling to deal with the historical fragmentation of skills development component."*

The Environmental Sector Skills Plan for South Africa (ESSP), developed by the Department of Environmental Affairs in response to an absence of a pro-active approach to national environmental sector skills planning and in response to critical skills shortages in the sector, has portrayed the current state of supply and demand expectations of environmental skills and elaborated on scarce and critical skills in 2010. It also attempted to identify emerging trends and to expose environmental skills needs per sector (DEA, 2010a). An indication that this was a divergent approach to skills planning is evident in the lack of ongoing capacity to update this study, and the methodological findings of the study which showed a lack of national system instruments for integrating green skills planning into the national system of labour market analysis and skills planning (DEA 2010a; Lotz-Sisitka, pers. comm. 2016). It is also evident in the need for the DEA (2010a) to develop an enabling document for all SETAs to begin to integrate green skills planning into their sector skills plans, to stimulate a more cohesive cross-sectoral approach to green skills planning (South Africa. EDD, 2011a).

Further, Lotz-Sisitka (NESPF, 2014) cautioned against the inability to address the process and systemic challenges by flagging the following possible negative funding implications:

- a) The fact that funds are available, for example through SETAs, does not guarantee the optimal accessing and optimal use thereof because of a lack of alignment with national skills planning processes.
- b) The mobilisation of funding could be spoiled through disorganised and incoherent grant funding initiatives.
- c) Due to the competitive nature of accessing grant funding, stakeholders and role-payers are not necessarily open to sharing lessons learned with one another.
- d) The lack of proper coordination could result in inaccurate, isolated and limited sectoral green skills information.

It is this need and the nature of green skills on both local and global platforms that raise the demand for the mobilisation of funding resources and strategically constitute part of the very basis of the NSF's mandate as a key funding mechanism within the PSET context. The stage has been set for greater convergence attempts to pull the fragmented and segmented components of the skills development landscape into an integrated and differential post-school education and training system.

The following quote by the NESPF (2014) captures the essence of the most logical conclusion derived from the aforementioned evidence in substantiation of greater responsiveness in relation to green skills planning and implementation.

Yet the fact of the matter is that without a systemic approach to green skills development, and without system building for green skills development, all other Green Economy innovations are likely to experience the same problem i.e. a lack of adequate green skills for innovation development and implementation. (p. 5)

Hence, this notion of a systems approach emerges as a fundamental requirement in pursuit of the creation of new employment opportunities and the betterment of living conditions for all South Africans. Towards enhancing greater responsiveness, the NESPF's contribution could be of value in respect of South Africa's commitment in the form of national policy documents like the New Growth Path, the National Framework for Sustainable Development, the National Development Plan and the Biodiversity Sector Human Capital Development Strategy. The New Growth Path, for example, targeted five million work opportunities driven by the notion of shared growth along an inclusive trajectory of benefits that are mutually shared. The charting of this kind of policy direction of shared growth implies that every aspect of South Africa's economy ought to be explored and exploited in order to unlock potential wealth, including green economy growth dynamics. South Africa's Green Accord policy statement is indicative

of the fact that green economy dynamics are an important component of the skills revolution game plan. Consequently, green skills offer a serious driving force in realising the great and promising expectation of job creation (South Africa, 2010b; South Africa, 2008; NSF, 2013a).

The absence of a central skills planning mechanism has created a bottleneck scenario with dire implications for responsiveness across environmental sectors. NESPF (2014) claimed that although generic green skills needs exist across South Africa's green economy front, no mechanism is evident that could proactively catalyse the national skills system to ensure the progressive advancement of the green skills agenda. They substantiated this claim by illustrating that a) the lack of green skills produces a bottleneck hampering the country's economic prospects, b) ramifications of the lack of systemic organisation for the green economy, and c) deducing from various national green skills documents, it becomes clear that an obligation has been raised on a range of sectors to respond by reducing skills gaps across sectors, like fisheries, and energy and sub-sectors, like urban planning.

In respect thereof, Feiock (2013) suggested that in the absence of mechanisms to fulfil an integration role in decision-making across policy and jurisdictions, role players will most likely pursue short-term solutions while the collective action dilemma requires more strategic outcomes based approaches. Sadly, this scenario is likely to result in inefficient and ineffective collective action efforts. The NSF grant-making function resides at the core of the fund's operations, identity and functions, hence, the need to further elucidate this key organisational feature of the NSF.

Sharing the same sentiment as cited above by Feiock (2013), the NSF responded through the development of a Strategic Funding Framework (2013a), NSF Grant Disbursement Framework (NSF, 2015b) and NSF Operational Manual (2014). As already mentioned, the NSF's grant-making mandate stems from the Skills Development Act, Act 97 of 1998, and as noted in Chapter 5, the NSF processes and procedures have been reviewed by most of the organisational studies like the NSF Business Case, the Deloitte management report and Project Siyaphambili under the leadership auspices of Ernst and Young (see Chapter 4). As also shown in the previous chapters, these studies were undertaken across the NSDS II (2005-2010) and NSDS III (2011- 2018) periods. All these studies produced invaluable reports that could assist the NSF in reviewing its grant-making processes to empower the fund with much-needed responsiveness to supply the rugged demands of the changing PSET environment, hereby ensuring relevance and positioning the NSF as a premier enabler of skills development in the

country. The following account of the NSF grant-making processes and dynamics is mainly drawn from the abovementioned study reports and internal organisational policy documents. First, however, some perspectives on the nature of grant-making in general provide necessary background for this discussion.

According to Marshall (1998), collective action means “the action taken by a group (either directly or on its behalf through an organisation) in pursuit of members’ perceived shared interest”. Other features that were latter added more or less along a similar trajectory include the following namely: involvement of a group of people, shared interest, mutual actions in the quest of common interests (Meinzen-Dick & Di Gregorio, 2004; Vanni, 2014). The following section elaborates the notion of the NSF’s grant-making responsiveness as a mechanism of shared social interest.

6.3 Grant-making responsiveness

The following statement by Unwin in her book *The Grantmaking Tango: Issues for funders* (2004, p. 2) captures the funding context as a multifaceted complex process, using the metaphor of a tango dance:

We live in a funding economy. Across a whole range of public policy, activity is supported, encouraged and funded – it is less and less directly managed. Many organisations are now trying to deliver their objectives through independent organisations. In turn there is a growing sector dependent on grants, with little or no income of its own. Funders and funded alike are engaged in complex dance in which the agenda of those wishing to make grants is reconciled with the agenda of those applying for them. This reconciliation is rarely straightforward, and is challenging to both sides. High quality grant-making is an attempt to make that relationship a productive one for both parties.

According to a study done by the Fiscal Policy Studies Institute of Baltimore, Maryland in October (Friedman, 2000), namely ‘Results-based grantmaking: An approach to decision making for foundations and other funders’, it is never enough to chart a role to play as part of a broader strategy without having a game plan that depicts the ways of fulfilling the required role. The following quote captures the essence of grant-making: “If foundations are change agents, then there is a compelling reason to believe that a coherent theory of grant-making is necessary to produce that change. A theory of grant-making could be thought of as part and parcel of the foundation’s theory of change” (Friedman, 2000, p. 10). Friedman (2000) and MacKinnon and Amott (2006) suggested the following main question resides at the heart of grant-making: “How do we fund towards making a meaningful difference?” The following four

critical fundamentals of grant-making address this core grant-making question: ‘how to give money (funds)’, ‘for what’, ‘to whom’, and ‘when’ (Friedman, 2000, p. 10).

Grant management pertains to all the administrative tasks necessary to manage funds, reporting and programme implementation according to due standards and in line with the expectations and requirements emanating from the fund source (Grantsmanship Centre, 1996). The United States Federal government defines a grant as “an award of financial assistance from a federal agency to a recipient to carry out public purpose of support or stimulation authorised by a law of the United States” (Gartner Industry, 2008, p. 2). A distinction is made between formula grants as grants determined by law or regulation for long periods, which are usually not confined to a specific project, and competitive grants which are awarded on the basis of a competitive process. The United States Federal view of what a grant entails is the kind of grant understood as central to the NSF grant-making function.

The NSF Grant Disbursement Framework (2015b, p. 2) stated that value for money is defined as: “utility derived from every purchase or every sum of money spent. Value for money is based not only on the minimum purchase price (economy) but also on the maximum efficiency and effectiveness of the purchase/investment”. This clearly correlates with what Feiock (2013) referred to as ‘transaction costs’ of participating in a mechanism like the NSF. Due emphasis is placed upon the importance of an effective and efficient grant-making mechanism to provide reasonable assurance of returns on skills investment in terms of cost and value (NSF, 2015b).

Moreover, according to the European Commission Guidelines on Proposal Evaluation and Selection Procedures (2002-2006) (European Commission, 2002), grant-making rests on the following fundamental principles, namely a) quality – approved projects must be able to illustrate a high level scientific and managerial quality in line with the funding objects of the funder; b) transparency – in the light of those preparing project proposals (like researchers) and those adjudicating proposal submissions, it is important that the grant-making process be clear, well described and accessible to all interested parties; c) equality of treatment – essentially, all proposals must be treated on the same basis without any discrimination against where the proposal is coming from and who the proposer is; d) impartiality – it is important that all proposals be treated without bias and on presented merits; and e) the funder reserves the right to exclude any proposal.

Broadbent (2006, p. 198) viewed grant-making as the “intersection of capital and the community and the impact that we have at that vital intersection that will speak to the quality of grantmaking”. He questioned the impact that our grant-making has either for immediate relief or longer-term creation of sustainable development. How do we determine or know that the impact thereof is short-term or long-term? As the NSF is a grant-making institution which is oriented towards supporting the integrated post-schooling White Paper objectives, which are to develop a sustainable skills development system in South Africa, there is clearly a need to consider both short-term impacts of interventions, and more importantly, the longer term impacts of the NSF as well as its role and function in the wider landscape of post-school education and training. The question of short- and long-term impact is also one of the key questions that influences green skills planning and discourses (as noted in Chapter 3), thus also green skills investment and grant-making, as will be discussed in the final chapters of this study.

The following quote by Kessler and Snowdon (2005, p. 2) highlights the importance of the element of planning in the grant-making process: “Though most funders spend considerable time thinking about the issues they hope to address, they spend inadequate time up front thinking through the impact they would like to have with their grantmaking and how to allocate their resources to achieve their goals”.

6.3.1 Grant-making responsiveness: Emerging trends and theory of change

The grant-making trends discussed below are noticeable especially from a North American context. Unfortunately, not much research literature on grant-making is available from other contexts like Africa or South America, which is ironic since large amounts of funding have been allocated to African and South American countries via international development aid agencies. Broadbent (2006) mentioned the following trends in grant-making, namely:

- a) strategic intent – this pertains not only to an interest to treat the symptoms but also to a strategic intent to deal with the causes of problems;
- b) interest in scale – successful funding programmes or projects are preferred on a larger scale due to good track record success rates;
- c) hard-line approach – funders are becoming more and more rigorous in terms of funding expectations, requirements and criteria;
- d) increased awareness of public policy – grantmakers are becoming more interested in public policy due to the potential of increased social impact;
- e) increased knowledge awareness – organisations, be they funders or funded, have realised the tremendous opportunities in their work exploits to accumulate knowledge through shared

experiences; and f) increased assertiveness to convene – funders have tremendous power to make calls to convene. Interested parties don't ask questions; they come because they understand the powerful ambiance of funding organisations and the associated opportunities and possibilities inherent in these calls or requests to engage.

Snowdon and Kessler (2005) mentioned the following key trends, mainly relating to the North American context but still noteworthy, namely a) significantly emerging growth in the grant-making sector – in 2004 alone, 66 000 grant-making agencies disbursed a record funding investment of 32.4 billion dollars, reversing the seeming decline of the previous year's disbursement; b) demand for greater accountability – due to the scandalous reputations of many NGOs and private companies, there was a huge public outcry for greater transparency and accountability; and c) complex context of non-profits – a decrease of funding flows coming from public coffers due to more strategic approaches and the demand for performance target setting standards have left non-profit organisations under severe strain and pressure to perform and to compete for survival.

The development of change theories is becoming an important tool for grant-making. According to MacKinnon and Arnott (2006, p.2), a 'theory of change' is critical in the grant-making function. Further, a theory of change is described as follows:

A theory of change describes a process of planned social change, from the assumptions that guide its design to the long-term goals it seeks to achieve. Grant makers who have created theories of change explain that having a theory helps them and their grantees draw logical connections between activities and outcomes. It helps them to articulate exactly what propositions and assumptions their work is testing – and therefore what they should be assessing in their evaluation plan.

Logic models are also very useful and these have been widely used in grant-making governance, but they should not be confused with the theories of change framework. A theory of change approaches a desired change broadly or widely, investigating the assumptions along a complex path of plotting a desired change state from genesis to the end. Part of this process is the identification of preconditions that will enable or inhibit identified activities toward change, not unlike the interest that I have in generative mechanisms in this study, a topic that I discuss in more detail in the next chapter of this study. A logic model follows a more refined path which looks at inputs and results in a more practical manner. This process results in the listing of practical steps from inputs to desired goals and so forth. It is believed that some grant-makers use the logic model as an implementation mechanism in relation to their theory of change approach (MacKinnon & Arnott, 2006).

On a deeper generative level, political economy and development aid emerge as quite challenging phenomena in the area of grant-making globally. Gibson, Andersson, Ostrom and Shivakumar (2005) confirmed multiple inadequacies with regard to the lack of delivery power of development aid initiatives globally. Some of these inadequacies pertain to the misalignment between the initial expectations between donors (grant-makers), the bureaucratic barriers of recipient parties (grantees) and procurement or disbursement constraints (Gibson et al., 2005). This claim has been based upon numerous studies done over the last four decades. Gibson et al. (2005) cited, for example, the following studies in respect thereof: Boone (1994); Burnside and Dollar (2000); Devarajan and Swaroop (1998); Dollar and Svensson (2000); Pack and Pack (1993); White (1992); World Bank (1998).

The study by Gibson et al. (2005, pp. 25, 26) makes a strong proposal to rethink the notion of development aid based upon the following six key research findings which emerge as major impulses in terms of the political economy and development aid issue namely:

... an awareness of the important role of incentives; paying attention to the nature of the good involved; focusing on how ownership is related to sustainability; examining how learning is encouraged at an individual and organizational level; the role of consultants in development assistance; and the importance of putting beneficiaries first.

I believe that what makes these findings extremely important for national green skills funding from a grant-making perspective is the heavy responsibility imposed upon the institutional organisation and arrangement. Note the correlation between the following two statements:

It is argued that much of aid's failure is related to the institutions that structure its delivery. These institutions govern the complex relationships between the main actors in the aid delivery system, and often generate a series of perverse incentives that promote inefficient and unsustainable outcomes. (Gibson et al., 2005, p. 1)

Governance and operational models must facilitate effective and efficient funds disbursement (including project management approach) ... There is need for a paradigm shift: from output driven (short-term) to outcome based funding (long term) ... As the case with a lot of government programmes, the NSF's effectiveness was also hampered by an inappropriate institutional arrangement, which impacted *inter alia* negatively on the governance, accountability and agility of the fund. (Respondent 8)

Moreover, institutional failure for whatever reasons could have serious consequences especially for the poor, the sick and unemployed targeted beneficiaries. Here the Congress of South African Trade Union's (COSATU) media response to the failure of the Department of Social Development's ability through its delivery arm, the South African Social Security Agency (SASSA), to administer the application, approval and payment of social grants in

South Africa to disburse social grants in the North West province of South Africa is a case in point,

... it is really disappointed with SASSA terminating poor communities' social grants, in particular those who are living with HIV/Aids virus. ... COSATU demands that the Department of Social Development investigate the cancellation of the payment and what has happened to the money of those people. Those who took decisions must be suspended and face very strong action. (COSATU, 2006, pp. 12-22)

Although the NSF does not have a dedicated category of a 'theory of change' to guide its longer term planning, elements thereof are found in the NSF's Request for Proposal document (RFP), while traces of the project logic model are embedded in the standard proposal framework, and in the NSF guidelines for proposal writing. Given this, the following benefits of having a theory of change are extremely useful for consideration. MacKinnon and Arnott (2006, pp. 4-5) stated the advantages of working with a theory of change as follows: a) "establish common principles and vocabulary"; b) "make implicit assumptions explicit"; c) "identify resources and check them for adequacy"; d) "design more realistic plans of action"; e) "clarify line of responsibility"; f) "create more meaningful evaluations"; and g) "maintain healthy scepticism".

Respondent 8 acknowledged the importance of effective monitoring and evaluation, and alluded to the inherent challenge of measuring impact in the domain of grant-making. He commented: *"[Grant-making organisations] must put more emphasis on measuring outcomes/impact, although this is not a simple task. Amongst other things proving causality (between funder's intervention and outcome) could prove to be difficult"*.

However, as found in the discussions about the theory of change and the realist evaluation approach, the theory of change on its own might be an inadequate planning framework. According to Blamey and Mackenzie (2007), the main difference between the two approaches lies at the heart of the question: 'whose theory is being tested?'

On the one hand, the theory of change approach emerges as well defined and embraced by a broad range of participants. These participants become critical too because they comprehend the nature of the intervention the best, and ought to be persuaded by the measured outcome (Blamey & Mackenzie, 2007). On the other hand, a realist evaluation approach makes sense of theory concluded through overall conversational exchanges and meeting engagements focusing on narrow participant engagement. The emphasis in this approach is more on the identification of potential causal triggers than highly defined consensual plans and capacity building activities (Blamey & Mackenzie, 2007).

Additional to the articulation of the differences between these two approaches, Pawson and Tilley (1997) claimed that the story of programme evaluation in general over the ages has revealed unconvincing results. This is the case notwithstanding huge investments and high expectations in respect thereof.

The above discussion provides a good orientation to the grant-making dynamics fundamental to the core funding business of the NSF. Raising the question of short-term and long-term impact provides the frame for deliberating a more in-depth discourse on NSF and green skills funding, an issue which is considered in the next chapter. The following discussion specifically relates to the NSF grant-making processes.

6.3.2 NSF's grant management system: *Grant-making as a policy mechanism*

The key frameworks informing the NSF's funding responsiveness as developed by the NSF governing the grant-making domain are as follows: a) the Strategic Grant Allocation Framework (NSF, 2013a); b) the Grant Disbursement Framework (NSF, 2015b); and c) the Operations Manual of the NSF (2014c). The focus of these frameworks was to display: a) interventions (programmes) relevant to the NSF's strategic imperatives and the achievement of clearly articulated goals and objectives; b) the selection of skills training/portfolio development programmes; and c) the prioritisation of project proposals based on evaluations and analyses against standard criteria.

This section sets out grant-making features of the NSF, displaying a structured and disciplined process of grant-making towards assessing and selecting the portfolio of interventions, programmes or projects that will deliver the required outputs and outcomes articulated in the NSF strategy. Due to the nature of the mandate of the NSF, the demand for skills development interventions frequently exceeds the provision of funding. As a result of huge public expectations, the fund's grant-making interventions emerged as a priority within a context where there are innumerable funding needs. It is within this context of demands and division of resources for policy intervention, where ICA dilemmas emerge associated with the NSF grant-making function. In line with what Feiock (2013) inferred, the division of policy intervention causes a low return on investment, which is reflective of both strengths and weaknesses. Hence, this reality demands a systematic approach to quantify and qualify how the NSF fulfils its grant-making function.

The following quote from the NSF's new Grant Disbursement Framework (2015b) captures the seriousness and importance of carrying a national mantle of skills development funding namely:

... [For the] NSF [to be] relevant and impactful within the PSET environment a relentless focus to prioritise its efforts and leverage its network is required, maximising the value unlocked with the funding at its disposal. A central theme across grant disbursement is the concept of "value", which demands further examination (p. 2).

As mentioned earlier, the NSF makes use of a combination of a) reactive, and b) proactive or interventionist grant-making approaches. The goal of such a combination of approaches is to invite applications for skills grants from qualifying applicants on the basis of approved grant criteria (NSF, 2013a). These approaches create ICA dilemmas because in both grant-making initiatives the NSF is dependent upon service providers to assist the fund to deliver on its strategic mandate. The intended collaboration carries some risk, for example, the service provider might disappear with some of the funds intended for training purposes. Feiock (2013) suggested that the ICA framework had been designed to better understand the nature of ICA challenges and to better grasp a profile of parties in terms of authority, involvement, associated risks of action and inaction and incentive drivers behind role players' actions.

In terms of the first approach, the NSF facilitates a process where project applications are sent to the NSF by potential applicants whether a Request for Proposals (RFP) or a bid was issued or not. This approach is intended to allow for creativity and innovative approaches to skills development initiatives, especially from a project design perspective (NSF, 2013a). The latter approach, which is more of a 'proactive/interventionist approach', suggests that based upon the fund's own research, critical funding areas are proactively identified where skills interventions will significantly promote economic growth and the prospects of employment for unemployed and under-employed people. Applications or project proposals under this approach are invited through a Request for Proposal (RFP) process, which could be through either an 'Open Call' or a 'Closed Call' (NSF, 2013a).

In the RFP Open Call process, the NSF embarked upon publishing a formal RFP through the media to invite applications from qualifying applicants to deliver on skills projects. Skills proposals are evaluated and funding is committed through facilitating a competitive process to ensure only that the most suitable applications in terms of: a) programme goals (project eligibility), and b) highest potential of impact are selected (NSF, 2013a).

In the Request for Proposal Closed call process on the other hand, the NSF embarked upon inviting defined, targeted and specific partners in line with the broad strategic goals of the NSF. The idea was to assist in unlocking or catalysing other directly needed resources to drive skills development. It was envisioned that the responsiveness of such funding ought to be evident on a long-term outcomes basis. This process places a huge responsibility on the fund to capacitate skills partners to quality-assure applications/proposals and to ensure compliance in terms of NSF funding requirements. Skills partners usually considered as part of the designated and targeted groups – but not limited to these – emerge from the heart of the institutions belonging to the DHET’s post-school education and training system, namely the TVET colleges, SETAs, universities, professional bodies, and other state departments (NSF, 2013a).

In both reactive and proactive NSF grant-making approaches a strong reliance on externalities is evident which poses collaboration risk. The collaboration risk arises through the NSF’s dependency on the external implementation capacity of skills development providers or funding partners (NSF, 2013a; NSF, 2015b).

6.3.3 NSF’s grant management system: Grant-making objectives

The NSF’s Grant Disbursement Framework (2015b) alluded to the following high level objectives of its grant-making function: a) the grant-making function exists to operationalise the organisation strategy of the NSF; b) it endeavours to link or align programmes and projects with the achievement of strategic objectives; c) to establish reckonable funding criteria for the evaluation of project proposals; d) the provision of quantifiable information to ensure solid project and or programme portfolio structuring; e) to exclude any unclear perception, political interest and bias in the process of project and or programme selection; f) to establish a solid policy framework to ensure measurable performance criteria; and g) to get the most out of the fund’s impact.

6.4 A brief profile of the NSF grant-making process

The profile of the NSF’s grant-making process can be categorised as follows: a) definition of strategic objectives for grant funding; b) initiation of specific skills development funding initiatives including bursaries to deliver on pre-established strategic objectives; c) grant implementation; and d) grant close-out of the project and/or programme implementation to ensure that the desired outcomes and outputs are achieved (NSF, 2015b; NSF, 2013c; NSF,

2014c). Figure 6.2 below illustrates schematically the four phases of the NSF grant-making process:

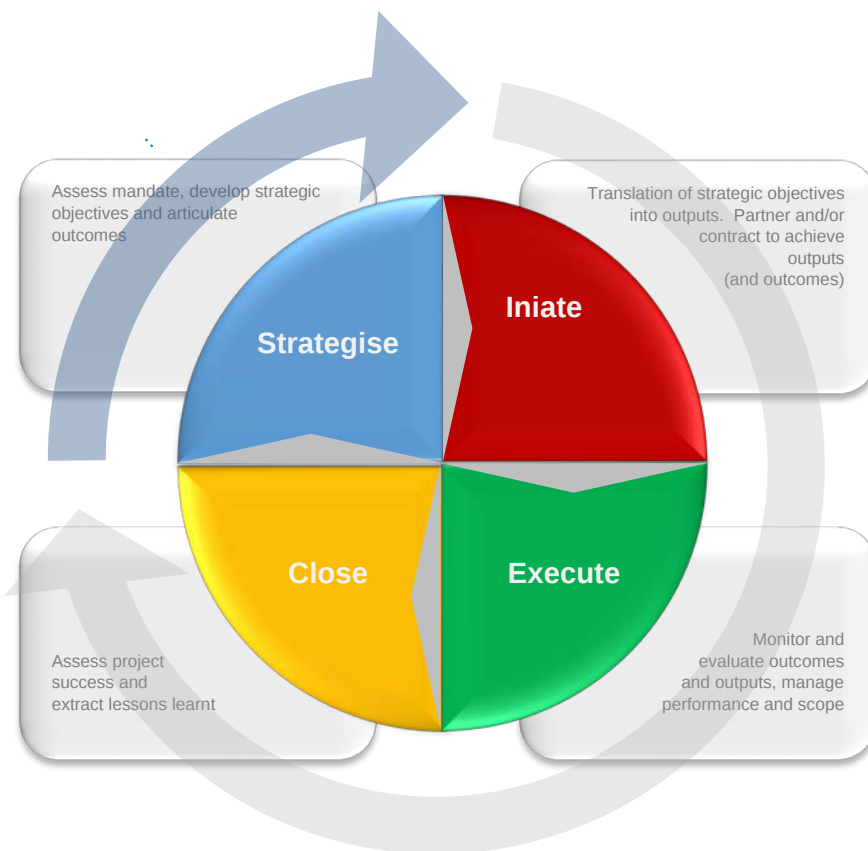


Figure 6.2 The NSF grant-making approach (NSF, 2015b)

The importance of effective implementation at each phase of the grant-making approach to ensure success cannot be overemphasised. Each phase is determined by the previous one due to the significance of historical intelligence collected during the preceding planning process. The success of grant-making at each phase is dependent upon contributions from the main business units in the NSF. Specific units direct certain phases of the grant-making process (NSF, 2013c; NSF, 2015b). As mentioned, the whole NSF grant-making process presents a serious ICA dilemma. On the one hand, it is envisaged that the NSF grant-making process should translate into the provision of optimal skills development services that are responsive to skills development. On the other hand, however, an ICA dilemma emerges through the inherent interdependency and co-dependency tendency to designate the provision of duties to multiple parties (Feiock, 2013; Feiock, 2009; Feiock & Scholz, 2010).

NSF grant-making institutional actors facing the abovementioned funding dilemmas could only benefit from an ICA approach because mitigating mechanisms are developed collectively. These benefits of an ICA approach are mutually shared because of the structural embeddedness of the relational dynamics (Granvetter, 1985; Feiock, 2013). In the next sections I discuss these funding dilemmas and how they are collectively mitigated in the NSF, to illustrate the benefit of an ICA approach to grant-making.

6.5 Response mechanisms and how they can potentially address ICA dilemmas and strengthen an ICA approach to NSF grant-making for green skills

As can be seen from the discussion above, the NSF grant-making process is carefully structured around a process that seeks to enable value in relation to the mandate of the NSF. It has various means of operation i.e. via open and closed calls, each of which has its own procedures. It has a framework for establishing value and priorities and it has accountable procedures that are followed along the grant-making routes. There are also specified structures that assist in ensuring that an ICA type of approach within the NSF is followed. There are, however, also externalities, many of which are unpredictable in practice, despite careful screening and planning processes which are put in place in advance.

Building on the analysis of event mechanisms in Chapter 4, the main *event mechanisms* that influence an ICA approach to grant-making within the NSF will now be discussed in more detail. Note that I differentiate here between event mechanisms as used at the level of the actual and empirical in critical realist analysis and *generative mechanisms* or *generative complexes* (see section 7.2.1 of Chapter 7) which probe the underlying interacting generative mechanisms that shape event mechanisms and their efficacy and actualisation at the level of the actual and empirical. Underlying generative mechanisms shaping the NSF's response to green skills funding are discussed in more depth in the final chapters of this thesis.

6.5.1 Response mechanism 1: Contracts and multiplex self-organising systems

As can be seen from the above, contracts are a critical event mechanism that facilitate the entire grant-making value chain, from NSF to skills provisioning *in situ*. Contracts tie parties together through joint service ventures. This event mechanism requires the consent of the parties involved. On the one hand, this event mechanism preserves self-rule. On the other hand, it creates a formal framework for resolving challenges and ensuring the delivery of agreed upon interventions. National, regional and local governments are bound by law with other non-governmental parties through contract networks responding to a wide variety of matters

(Feiock, 2013). Also, Akimov and Soutchnaski (1994) have found that cooperation is strengthened when parties mutually share information and when they agree to consolidate the cooperation via binding agreements. Olson (1965) argued for collective action towards common interest among a group by stating that self-interested individuals will fail to embrace the common interest of a group, a process that can be ameliorated via the agreements that are concretised in the form of a contract. According to Thurmaier and Wood (2002), contracting is a prevalent, well-tried and tested mechanism for local service delivery. It is especially effective in dealing with service provision dilemmas emerging in an uncoordinated fashion and which are too costly (Andrew, 2009).

As noted above, the objective of the NSF's grant-making value chain is to show capacity to effectively identify proven and well qualified stakeholders to assist in the implementation of skills development interventions. The identification of associated risks and mitigating measures become an integral part of the grant-making process. Therefore, in order to ensure the integrity of the abovementioned requirements, the mechanism of contracting emerges as a vital component to ensure that the NSF delivers on its strategic mandate. The whole objective of the NSF grant-making Phase 2, namely 'Grant Initiation' unfolds to produce effective legal frameworks for the delivery of projects over a predetermined period of time. In fact, no NSF funding is directed into any given area without a formal contractual framework governing the delivery of interventions towards the resolution of challenges. The purpose of the NSF's grant-making system is ultimately to produce quality service contracts with skills development providers (NSF, 2013c; NSF, 2016).

The service exchange engagement is associated mainly with two sources of risk within the context of service delivery and the contractual engagement, namely a) 'asset specificity' and b) 'measurement difficulty'. An NSF contractual agreement relates not only to the framework governing the roll-out of a skills development project but it also raises 'transaction-specific' costs in terms of the essential obligation of the contract. The first source of risk pertains to the customisation of the needs of the buyer (in the case under discussion, the training provider or provider). The first tranche payment system where the NSF pays a portion of the project allocation upfront to initiate the project in terms of commencement is an example of this. The risk involved could imply that the provider might abscond and abandon the project after receiving the first tranche payment. The value of the service exchange could be adversely affected due to the 'measurement of difficulty'. This source of risk pertains to the difficulty in

measuring the projected outcomes and project deliverables. Project activities could easily be performance-evaluated through well standardised criteria, but services with greater measurement difficulty, like attitudinal change in learners who are part of an environmental skills awareness training programme, provide complexity that is less easy to deal with in the contracting procedure (Brown & Potoski, 2005; Shrestha & Feiock, 2011; Shrestha & Feiock, 2013).

The mechanism of contracts becomes critical as part of the second grant-making phase, namely Grant Initiation, with special reference to the final stage 5 that of grant initiation. The goal of all the five stages of the Grant Initiation phase (Phase 2) alludes to the ability to solicit and contract the preferred providers. In terms of stage five, the accounting authority of the DHET decides to approve or disapprove the project or programme application process. This results in a formal notification of the outcome of the adjudication process. The NSF enters into contracts with successful bidders under the legal authority of the DHET. Part of the contracting process is the finalisation of agreed upon project or programme performance measures. In terms of responding to the NSF's horizontal dilemma, conflict of stakeholder interest as alluded to before (see section 6.2), the contracting mechanism qualifies and quantifies the level of skills development agreements needed and required. It concretises the detailed terms of reference for skills development initiatives in terms of goals, performance targets, risk identification, and risk mitigation measures (NSF, 2013c; NSF, 2016b), thus seeking to address this horizontal dilemma in an ICA approach to grant-making.

In terms of multiplex self-organising systems, at the heart of this form of mechanism is a strong dependence on entrenchment for policy coordination across many policies and operational areas. To reach agreements through cooperation could be difficult individually, while embedding them in an established set of policy guided relations tends to be more effective, especially if these address the core national mandates that the NSF is guided to implement by national policy. Multiple relations between parties are indicative of trust and the likelihood of success emerges as a strategic probability if relations are also guided by policy and policy objectives and norms. Moreover, this creates more opportunities for future interactions to increase. These prospects for greater exchange would not have been likely if relations were dictated mainly from one source (Thurmaier & Wood, 2002; Andrew, 2009; Feiock, 2013), and in the NSF case, these need to be directed from multiple policy sources that are relevant to the NSF mandate and function.

In relation to the interests of this study, it could be seen that the NSF is facing a functional dilemma where a conflict of policy interest is evident in the domain of green skills policy initiatives. The green policy landscape in the country remains fragmented and uncoordinated across different sectors: SETAs, for example, have been initiating policy responses to address the needs of the green economy, and initiatives led by the Green Fund have endeavoured to address the lack of coherent green skills policy and capacity responses countrywide, as described in Chapter 3. This challenge, however, also presents as an opportunity, and the opportunity exists for the NSF to consider a multiplex self-organising mechanism between the various actors like the NSF, the Green Fund, the DHET and the DEA and other relevant key stakeholders, which would need to coalesce around policy objectives and the national mandate of the NSF, and be concretised via a relevant contractual agreement. This opportunity would further assist all role players to entrench policy coordination across the different yet related functional areas in the country. The interdepartmental Eastern Cape Green Skills Forum, which functions under the auspices of the Office of the Premier in the Eastern Cape, is a model that emerges as a prime example of how such a mechanism can work effectively to strengthen the development of a more formal contractual engagement with the NSF amongst multiple partners (NESPF, 2014).

6.5.2 Response mechanism 2: Mandated agreements, partnerships and constructed networks

Dixit (1996) emphasised the importance of cooperation to ensure and maintain long-term relationships between parties toward credible institutional reputations. These mechanisms become examples of the kind of agreements the NSF assumes responsibility both to initiate and to monitor. When two or more public authorities enter into service agreements, this kind of mechanism is called a mandated agreement. In the context of such an agreement, the higher level authority usually provides the funding. Moreover, mandated agreements also constitute the establishment of stakeholder relations among identified local role players. Beneficially, it offers a single purpose approach and specific functionality. This kind of mechanism ensures fewer inaccuracies without any surprises while effectively impacting a broad geographic area (Farmer, 2010; Feiock, 2013) addressing grant-making dilemmas within the ICA framework.

This is another important mechanism the NSF relies on when it comes to joint service delivery agreements with other government departments and state-owned enterprises. This mechanism is called a protocol agreement between sister departments. An example of this agreement is the protocol agreement between the DHET and the Department of Correctional Services. This

mandated agreement gave rise to the ‘Offender Training Project’ which aims to empower prison inmates with relevant skills across South Africa’s correctional facilities in the country. Another example of a variation of this mechanism is the NSF’s existing agreement with the Department of Trade and Industry’s (DTI) Small Enterprise Development Agency (SEDA). This agreement translated into the Basic Entrepreneurial Skills Development (BESD) project which aims to empower both emerging entrepreneurs (EEs) and entrepreneurial skills development practitioners (EDPs) across all of South Africa’s nine provinces. In fact, the bulk of the current NSF funding has been contractually committed into mandated agreements with the PSET institutions like TVET colleges (NSF, 2013c; NSF, 2016; NSF, 2015b).

I opine that this mechanism is worth considering by the NSF when facing the vertical dilemma, namely the conflict of competitive interest which is visible in the green skills grant-making landscape, especially with regard to the NSF and the Development Bank of South Africa (DBSA) in partnership with the DEA’s Green Fund. Through a mandated agreement between the DHET and the DEA via their respective funding mechanisms like the NSF, DBSA and the Green Fund, it might be possible to *respond collectively* to a national priority like green skills from an ICA awareness orientation and approach. The effective utilisation of this kind of mechanism can only maximise the chances of all role players, based upon similar green growth policy aims and opportunities toward the expansion of the green economy and wider sustainable development of South Africa.

‘Partnership mechanism’ refers to the phenomenon of when local units enter into multilateral partnerships on a voluntary basis. At the heart of this form of agreement are a) acceptance of common terms, and b) common obligations. Both these dimensions are required for a commitment to action. Targeting a broad-based functional area, both public and private role players constitute partnerships. Feiock (2013) explained that these kinds of partnerships have become very popular, endeavouring to stimulate and mobilise economic development interests across broad-based regional spaces. This mechanism could therefore be helpful to resolve both horizontal and functional dilemmas of an ICA approach effectively (Olberding, 2002; Lubell, Schneider, Scholz & Mete, 2002; Feiock, Steinacker & Park, 2009).

The partnership mechanism provides tremendous potential to resolve the conflict of identity interest facing the NSF, NSA and the DHET described in the section above. All parties should accept the common terms on a voluntary basis and accept the common obligations in accordance with the relevant legislative frameworks like the Skills Development Act, Act 97

of 1998, and the Skills Development Levies Act, Act 9 of 1999, and related strategic policy frameworks discussed in section 6.3.3.

Constructed networks is an event mechanism that is similar to mandated agreements where higher levels of authority or lead authorities may provide funding. However, constructed networks incorporate mechanisms coordinated by third parties, for example, senior government parties have the responsibility to structure multilateral relationships across related policy spaces. Funds are allocated by senior government authorities to role players, stimulating collaborative service engagements. Constructed networks presuppose that a senior government authority selects a lead government organisation to assume responsibility for designing and managing an intergovernmental service provision within a multi-relational context (Grady & Chen, 2006; Agranoff & McGuire, 2003; Feiock, 2013). An example of this was when the DEA allocated responsibility to the South African National Biodiversity Institute (a parastatal) to develop, fundraise for, and implement the Biodiversity Human Capital Development Strategy (SANBI, 2010). A similar relationship exists between the DEA and the DBSA with regard to implementing and managing the Green Fund, and between the DEA and the SANBI with regard to implementing and managing the Global Green Funds for climate change adaptation in South Africa.

According to O'Toole and Meier (2004), the phenomenon of constructed networking is a well recognised mechanism in effectively dealing with public service challenges especially when the constructed networks are also aligned via legislative or functional mandates and policy. From the above discussion, the event mechanism of mandated agreements, partnerships and constructed networks also holds potential for mobilising a stronger relational engagement between the NSF and the Green Skills sector and its own mandated agreements, partnership and constructed networks oriented towards green grant-making and skills system funding.

6.5.3 Response Mechanism 3: Working groups

In the realm of the NSF, people who constitute working groups are usually 'voluntarily' elected or appointed public officials. Meetings are usually held on an informal basis where information is shared and activities coordinated. Although these engagements are socially embodied, agreements in respect thereof are respected. These engagements could also be scheduled regularly. An example of such an engagement could be an NSF Change Request Committee meeting dealing with project change applications (Le Roux & Carr, 2007; Feiock, 2013). In the context of green skills, one of the key working groups that is significant is Working Group 3

of the DEA, where green skills issues from the National Environmental Skills Planning Forum are tabled for official government attention. This would be a key working group to engage with in terms of NSF funding relations for green skills development.

Other examples of this event mechanism in the NSF are the Grant Technical Evaluation Committee (GTEC) and the Grant Adjudication Committee (GAC). The committee structure is key to the grant-making process of the NSF. The GTEC is a working committee structure under the oversight of the GAC, mainly responsible for the evaluation of proposals through the different evaluation stages, for example, administrative compliance, technical evaluation and due diligence, until the proposal reaches the GAC. The GAC is a formal structure, to which members are appointed by the Director General (DG) as the accounting authority of the NSF. The GAC reviews the whole evaluation process and adjudicates upon the presented proposal bids. The GAC adjudication is in the form of a recommendation to the DG. The DG finally decides on the recommended proposal bids from the GAC (NSF, 2013c; NSF, 2016b). Working Group 3 of the DEA and the skills planning working groups of DHET and the NSF could therefore potentially liaise in terms of strengthening both their interests in terms of green skills funding, addressing skills forecasting dilemmas and also vertical dilemmas, for example, relating to possible competing interests of the ICA approach.

6.5.4 Response mechanism 5: Informal networks, councils of government and centralised regional authorities

Informal networks are another important event mechanism to consider for strengthening the ICA approach. Local autonomy is produced by informal network interactions. This form of mitigation has the ability to stimulate values of trust in a participatory context where defection is unlikely to occur easily. Informal network engagements bring people into face-to-face interaction. They constitute fertile ground for customs of exchange and interchange to grow and they foster the cultivation of cooperative agreements. Policy network structures emerge organically as a result of the ordinary and unplanned interactions among local players. This kind of mechanism is usually preferred by local players to sustain local self-rule and the local right to be different (Axelrod, 1984; Feiock, 2013). An example of such a network is the Green Skills Forum in the Eastern Cape.

The NSF does not deal officially with informal networks in contracting terms. However, as the fund prepares to move into provincial and regional spaces, the likelihood of working more closely with some of these networks is increasing. Also, from a marketing perspective, the need

to share the NSF's funding expectations has become increasingly relevant on this level (NSF, 2015b) and these networks are also valuable sources of skills intelligence that can help the NSF gauge the relevance of their programmes.

Councils of government are another form of event mechanism where the focus is more on collective and multiple policy relations among parties. This form of responsibility and the nature of relations are determined by statutes and laws and not by informal efforts of negotiation (Feiock, 2013). This mechanism is not directly relevant to the environmental context of the NSF and related green skills requirements (Kwon & Feiock, 2010), but could help with assessments of green skills needs, especially in local government contexts where there are many green skills needs (DEA, 2010).

Centralised regional authorities are another event mechanism that can be considered within the ICA framework. Here it is assumed that regional authorities have enough capacity to deal with challenges or societal needs. Examples of these are local municipalities that have been restructured into one big metropolitan governance arrangement. Another example would be the formation of provincial skills councils. Although there are obviously advantages and disadvantages to the option of consolidation, high failure rates have been attributed mainly to political conflict and cheaper alternative coordination options. The extent of the scope of consolidation to establish regional authorities depends mainly on the political and administrative costs available or earmarked and the kind of focused solutions envisaged to address institutional collective challenges. These kinds of restructuring initiatives increase the risk of losing influence and power (Carr & Feiock, 2004; Feiock, 2013). In the context of the NSF, one of the main forms of centralised regional authorities that the NSF deals with in grant-making is the provincial skills authorities/councils, who are responsible for provincial skills mandates and interests. From a green skills perspective, these same provincial skills councils would need to be alert to green skills demands at a provincial level to inform skills grant-making at a wider national level. Engaging with this event mechanism can potentially resolve functional dilemmas caused by the fragmentation and divergence of skills development activities on a national versus provincial level. The benefit of using the mechanism of centralised regional authorities could result in working towards a consolidated ICA approach to policy implementation via the NSF's grant-making role.

As shown in the discussion above, this review of the various ICA event mechanisms available to resolve dilemmas illustrates the relevance of these mechanisms within the context of national

green skills funding. As outlined above, all these event mechanisms have various levels of potential for improving the current context of green skills funding in South Africa, and especially for improving the relationship between the NSF and the green skills funding sector. These mechanisms will be discussed in the final chapter of the study (Chapter 8) in the form of recommendations for facilitating green skills development in South Africa from a grant-making perspective.

6.5 Conclusion

The chapter started out by drawing on Feiock's (2013) ICA framework to re-describe the dimensions of the NSF's funding dilemma in the context of the NSF's grant-making function. Grant-making was described relating to its nature and emerging trends, for example the implications for the political economy on development aid and a proposal made for a theory of change, being mindful of embedded limitations thereof. In terms of the identification of mechanisms to resolve plaguing dilemmas, contracting emerged as a vital event mechanism. The contracting of service providers emerged as a vital mechanism to ensure that the NSF delivers on its strategic mandate. Partnership as an event mechanism could also benefit the resolution of each feature of all the funding dilemma features. Partnership as an event mechanism could be of great help to consolidate fragmented and uncoordinated interests and to develop greater synergies between the DHET and its funding instruments and objectives and the green skills sector. In fact, the partnership mechanism emerged as the most versatile mechanism which offers the most responsiveness across all ambiances of the funding dilemma, including the identity feature, namely conflict of self-interest.

CHAPTER 7

GENERATIVE MECHANISMS UNDERLYING DOMINANT SKILLS DISCOURSE: A METACRITIQUE APPROACH

PHASE 4: MECHANISM ANALYSIS

7.1 Introduction

This chapter brings to close the final phase of the QPAF framework analysis as the foundation of the research project's methodological orientation. Unlike the other preceding research phases, the generative mechanism analysis phase targets the deepest level of analysis and exposes expansive philosophical substratum inferences. This is done through a process of rigorous critique and retroductive analysis as outlined in Chapter 3. The chapter highlights the identification of underlying mechanisms shaping the NSF's sense-making awareness around national policy indications toward funding strategy formulation.

In approaching the task of analysing generative mechanisms, the chapter addresses the following sub-research question: *What are the generative mechanisms influencing existing and potential responsiveness with regard to how the NSF makes sense of national policy from a green skills perspective?* This question required a critical reflection of how the NSF is making sense of national policy documents. The critical analysis is approached from Bhaskar's (2010) proposed metacritique framework of the sense-making views, orientations, assumptions and ideologies underlying the supposition that national skills funding, including green skills, assumes that the skills development discourse is dominant and instrumentalist towards economic expansion (Motala, 2009; Balwanz & Ngcwangu, 2016) with special reference to the implications for national green skills funding as discussed in Chapter 2.

The implications of the abovementioned claim are potentially important for national green skills planning and funding. The reason for this is that funding responses can become reductionist. For this reason, the green skills research community needs to take seriously the pointer offered by Death (2014) in terms of diverse conceptualisations of green economy discourse, and ensure that the discourse they work with is reflective of a broader perspective, and not simply appropriation within dominant human capital and neoliberal discourses as pointed out in Chapter 2. The United Nations Educational, Scientific and Cultural

Organisation's (UNESCO) coupling of 'green economy and society', Death's (2014) pointer to consider the longer term social justice dynamics of the green economy (see Chapter 3 section 3.2) and green economists such as Herman Daly's (1999) challenge to re-think the foundations of economy, are potential ways of addressing this limitation, both from within and in relation to the green skills research and skills development community. If this risk remains unmitigated, South Africa's skills development machinery could succumb to a limited means of addressing or contributing to the multiverse societal and social-ecological challenges associated with the triadic challenge of poverty, inequality and unemployment (Allais; 2012; Motala & Vally, 2014).

Hence, the aim of the chapter is to critically consider underlying assumptions in the skills planning process of the NSF, which includes the assumption that national skills development funding automatically implies greater prospects for employment creation. Traces of these notions are evidently manifested in key policy frameworks like the National Skills Development Strategies (I-III), the White Paper for Post-School Education and Training, and the emerging NSDS IV towards an occupationally-directed shift, as well as other key policy documents such as South Africa's National Development Plan (NSF, 2015a) as discussed in earlier chapters. Motala (2009, p. 1) in 'Discussing Education and Skills in post-Apartheid South Africa', has this to say about the dominant notion of skills towards economic expansion:

The nation, and regrettably it seems even organisations of the working class, has become hostage to this way of thinking and are largely paralysed by it. Its main proposition is the idea that there is a great shortage of skills in our economy and that in particular areas of skills these are so critical as to make any possibilities for economic advancement unimaginable; that the education and training system is hopelessly out of sync with the demands of the economy, that the lack of skills is one of (if not the) the greatest obstacles to achieving high levels of economic growth, that the lack of skills is the primary cause for low levels of productivity. And because of this the country cannot compete internationally and will therefore fall further behind relative to the more developed and other developing economies of the world. (p. 1)

Further, scholars like Klees (2014), Allais (2012), Balwanz and Ngcwangu (2016), Motala and Vally (2014) have agreed that the underlying approaches that shape this particular view of the skills discourse are related to a neoliberal human capital discourse which is dominantly set as a one-dimensional response schema, despite the fact that the challenges confronting us have been established in a socio-economic and socio-ecological matrix of multiversity and complexity. The solutions to challenges like unemployment and poverty are similarly multi-dimensional and complex and are not exclusively economic, even though economic equity is an important dimension of responding to such challenges. The human capital and neoliberal

approaches revolve around a tendency to reduce skills development to an exclusively educational imperative and solely in terms of economic conditions and value (Motala & Vally, 2014; Allais & Nathan, 2014), blaming a lack of skills for economic ills, without addressing the actual problems of the economy (Allais, 2012). This reductive analysis reflects Bhaskar's (1998b) point about TINA (There is No Alternative) formations, which are realist in that they rely on the epistemic fallacy or the view that 'being' is purely positive. Such an approach forbids talk about alternative ontological possibilities that make up the world and absence and change are repressed; in other words, alternatives are not allowed to enter the dominance of a particular epistemic discourse.

The outcomes of such a reductionist perspective where skills development or education is perceived as an instrument (or *the main* instrument as maintained by Motala 2009) towards economic growth and expansion creates in many instances a narrowing of a wider range of real ontological societal issues like the matter of how ongoing environmental degradation affects current and future generations' well-being (Naess & Price, 2016). This in turn fails to give adequate attention to the need for funding being allocated towards wholesome green skills, within a broader awareness of green skills that includes issues of social and inter-generational justice and moral character (Motala & Vally, 2014; Alexander, 2014; Naess & Price, 2016).

Daly (1999), for example, outlined the challenge for in-depth ontological and epistemological engagement with green economy thinking and therefore also skills development as follows:

Standard neoclassical economics has become a brittle, desiccated and ossified discipline. No longer does the university student of economics get any exposure to the history of economic thought, or to economic history, or to comparative economic systems (capitalism, communism, socialism). All systems other than capitalism are thought to have failed; modern [neoliberal] capitalism is triumphant, so other systems at other times are considered irrelevant. No alternatives to the here and now find any place in the curriculum. The only issue addressed is fine-tuning the efficiency of modern capitalism, and that is the job of 'value-neutral' neoclassical economics. It is no good just criticizing ideas proposed by others if one has nothing positive to offer. (pp. xii, xiii)

Daly was responsible for highlighting the importance of including externalities into economic thinking and for his work on framing ecological economics in terms of complementary man-made and natural capitals. He suggested that "there is no point in expanding man-made capital beyond the capacity of remaining natural capital to complement it" (Daly, 1999, p. 19). Implications of this framework for economic thinking and associated forms of skills development are as yet underdeveloped world-wide, despite high levels of expanded

engagement with green economy into the Rio+20 international summit (UNCED, 2012). This line of thinking and further development thereof via forms of circular economy thinking being adopted to guide national policy (Geng, Fu, Sarkis & Xue, 2012), environmentalism of the poor dealing with environmental injustices and resource flows (e.g. Martinez-Alier, 2002), regenerative economics (Raworth, 2017) and expanding green economy thinking in South Africa (Nhamo, Pophiwa & Tshangela, 2014; Swilling, Musango & Wakeford, 2016) have much potential for addressing the TINA formation that is currently characterising the skills debate in South Africa. Thus an engagement with green skills in the context of the NSF has potential, not only for addressing the technical skills demand for servicing the existing economy, but also for driving a transformation of the wider foundations of economic thinking, and addressing the TINA formation that Motala (2009) highlighted. To explore this wider issue further, I consider Bhaskar's metacritique questions in relation to the NSF's funding system in the context of an emerging green economy and skills development landscape in South Africa.

7.2 Bhaskar's metacritique questions

Bhaskar's (2010) approach of a metacritique becomes extremely useful to reveal the interplaying dynamics between objects or issues like the skills discourse, associated green skills funding dynamics, human capital theory discourse and the neoliberal discourse. These causal mechanisms are fully explained as phenomena. The metacritique unfolds according to five analytical questions as listed below.

The goal is to find the key mechanisms responsible for shaping the NSF as a main funding mechanism within the PSET sector and the strongest possible mechanisms determining resource strategies in terms of explanatory powers related to empirical evidence. Bhaskar (2010) suggested that these explanations need to be compared for their strength and some explanations can be eliminated in favour of others through reasoned argumentation (Danermark et al., 2002; DeLanda, 2006; Bygstad & Munkvold, 2011a).

The NSF's funding mandate and responsibility do not emerge in a vacuum. According to Bhaskar (1998a), Sayer (1992) and Collier (1994), mechanisms are associated with the 'nature' of the objects of the real, that is, they are relatively stable structures, which the interplay of objects often generates like the relationship between the NSF and the DHET, and the relationship between the NSF and other green skills actors in South Africa. In this respect, the alignment of NSF funding priorities to the expectations of DHET emerge as a critical interplaying scenario. Therefore the skills discourses charted by the DHET are strategic and

embody crucial implications for the funding strategy of the NSF (NSF, 2013c) as was highlighted in Chapter 6. Bhaskar (1998a) stated that the objects and structures of reality have causal powers namely ‘generative mechanisms’ which cause events to become observable; hence, insights into these will be useful for understanding the NSF and its engagement with green skills. Moreover, the implications of the NSDS III in terms of what kind of projects the NSF ought to consider as key funding areas according to the SDA, Act 97 of 1998, become strategic policy imperatives. Hence, the important task of exposing the philosophical assumptions on a substratum level of the NSF’s sense-making process of funding policy indications (NSF, 2016b).

Through such an analysis, the idea is not only to participate in the process of explaining concrete events and processes but to show the differences between ‘structural’ situations and unintended conditions as emergent. Also, it is important to make sense of new mechanisms whilst emerging; examples of this are the emerging skills discourse tendencies on the NSDS (IV) horizon, and green skills research as a new knowledge field in the country (South Africa. DHET, 2016; Rosenberg et al., 2016; Danermark et al., 2002). This will hopefully help to inform concrete recommendations for a more responsive approach to how the NSF makes sense of policy from a green skills funding perspective. I will deploy Bhaskar’s six metacritique questions in sections 7.2.1-7.2.6 below to engage this analytical process.

7.2.1 What is inadequate?

The NSF’s policy alignment approach to skills planning would appear to be inadequate in relation to the emergence of green economy and green skills. The NSF’s policy alignment approach pertains to the fund’s way of making sense of national policy mainly with the view to align its funding strategy with perceived national funding priorities. In the planning process of how to mobilise and allocate funding resources, the NSF draws mainly from two primary policy sources to inform its funding strategy, namely a) funding priorities emanating from the NSDS, which is in line with what the SDA, Act 97 of 1998, requires; and b) any other relevant national policy initiative as per the discretion of the Minister and the Director General of DHET (South Africa, 1998a) as described in Chapter 4 and analysed further in Chapters 5 and 6.

The notion that the emergence of the green economy and related green skills requirements or needs ought to be integrally part of the NSF’s fundamental process of grant-making, as alluded to by the National Skills Development Strategy III (2011-2018) earlier and duly confirmed by respondents 8 and 9 during the interviewing process, has become reasonably acceptable. What

could be questioned is the notion that it is acceptable to expect the NSF to chart its own course as part of the broader policy landscape without a clear, well informed and relevant funding strategy and wider theory of change (see Chapter 6 section 6.3 Grant-making dynamics). As mentioned by Friedman (2000), funding organisations are agents of transformation and change. Therefore, the commitment toward strategic intent for change ought to reside at the heart of grant-making. The embodiment of this strategic intent implies that the NSF has an extremely important responsibility to ensure that funding resources are well organised, properly managed and strategically committed toward effective, efficient and significant change (MacKinnon & Amott, 2006). But the question is: How is the NSF making sense of policy indications in accordance with strategic policy documents for example like the NSDS (III) (2011-2016)?

It is in this grant-making ambiance, namely NSF Grant-making Phase 1, where the planning imperative strikes one as crucial (as argued in Chapter 6). Based upon what the NSF's strategic documents like the NSF Strategic Grant Allocation Framework (NSF, 2013a; NSF, 2016b) and NSF's Strategic Plan (NSF, 2016b) indicate and duly confirmed by some respondents (1, 2, and 8) during the interviewing process, the NSF assumes that the policy indications as per the national skills development strategies (NSDS) and other national policy frameworks are determined by national policy frameworks and hereby automatically become the preferred funding priorities (NSF, 2013). Some of these policy indications are directly related to the NSF and others indirectly related. See below an example of a direct funding indication as noted in the National Development Plan (NDP) (2012, p. 286) namely:

Training for start-ups and emerging businesses, rural development, adult basic education and training, and community development should be supported by money from the National Skills Fund and managed by relevant departments or agencies, such as Small Enterprise Development Agency, Kha Ri Gude and the National Youth Development Agency. This would enable the National Skills Fund to focus on large skills development programmes that form part of a broader programme. This would simplify the grant funding mechanism by supporting fewer, but larger programmes.

This is an example of what I would refer to as a direct funding policy indication because it mentions the name of the NSF specifically to assume responsibility for the area of need. Another example of a direct funding policy indication pertains to national priorities as enshrined in the National Skills Development Strategy (NSDS) III for which the NSF is directly responsible namely:

Section 5.2.1 National Priorities under the NSF.... Priorities that will take precedence in the NSF are the following: Projects that are in alignment with the National Skills Development Strategy and support the new economic growth path, the Industrial Policy Action Plan, rural development, skills to support the green economy, and skills

development in education and health, and that contribute towards capacity building and skills development for institutions dedicated to the fight against crime and corruption, as key priorities of government (NSDS III 2011-2016, pp. 34, 35).

Here it is clear that the NSF does have a responsibility to support the green economy, which is what allowed the large investment in the SARETEC Centre in recent years. However, one may well ask whether this direct funding policy indication is adequate. Besides the complex and difficult exercise of establishing which national policy documents should be supported or not in relation to the many other national policy frameworks available across the public service, the first challenge with these policy expressions is their nebulosity. If the alignment practice is mainly mirrored, it only broadly highlights the areas as opposed to articulating a more coherent and well-thought-through skills intervention response that is informed and targeted, i.e. the direct policy indication does not state exactly what the need is, for example, in the case of the 'green economy' and 'rural development'. The areas of 'green economy' and 'rural development', for example, are very broad concepts and ambiances of need. What kind of training is actually needed and which areas ought to be prioritised? Was the SARETEC investment the most strategic that the NSF could have made in terms of green skills, or might there have been other, more strategic investments that could have been made?

In my view, and based on the analysis above, it would seem that an indirect funding policy indication is where the policy document does not specifically mention the NSF or does not directly expect the NSF to respond to a particular need. The following example pertains to the demand for a national skills planning and labour market intelligence mechanism namely:

Establishing a credible institutional mechanism for skills planning ... NSDS Outcome 4.1.1: National need in relation to skills development is researched, documented and communicated to enable effective planning across all economic sectors. (NSDS, 2011-2016, p. 10)

Further evidence in this regard, relating to direct and indirect funding policy indications, is found in supporting documents to the NSF's Strategic Plan (2015/16- 2019/20), namely: 'Annexure D Comprehensive Alignment of NSF Strategic plan with the NDP 2030' and 'Annexure E Comprehensive Alignment with NSDS III'. Moreover, the NSF Strategic Plan 2015/16- 2019/20 indicates that the NSF's Strategic Framework for Grant Allocation focuses on the criteria for grant allocation and targets national skills development priorities. Section 7.4 specifically illustrates how eight national government policy documents, namely a) the National Development Plan (NDP) (2030), b) the Medium term Strategic Framework, (2014-2019), c) the Human Resource Development Strategy of South Africa (2010-2030), d) the

National Integrated Human Resource Development Plan 2014-2018, e) the White Paper for Post-School Education and Training, f) the New Growth Path (NGP), g) the National Skills Accord, and h) the Industrial Action Plan (IPAP), each with its respective policy objectives, are aligned through the NSF Strategic Framework for Grant Allocation (NSF, 2013c; NSF, 2016b). Respondent 2 further consolidated this point by stating, '*All the programmes of the NSF must be aligned to the White Paper*'. The alignment of funding policy becomes key to the NSF's response modalities.

Secondly, while these policy documents provide broad guidance on national policy priorities in terms of development, few were drafted and designed with the intention of being accepted as they are, without further dissecting and filtering related to skills development planning processes before appropriation. The Human Resource Development Skills System Review Report (2013, p. 37) under Section 6.2 Strategic skills planning, has identified the following gap in the *modus operandi* of key skills system role players like sector education and training authorities and the NSF namely:

The skills development system requires the development and implementation of effective strategic planning processes that clearly set out the strategy that informs the skills development interventions that are prioritised and how the allocation of resources (human and financial) are to be aligned to the strategy. (Human Resource Development Skills System Review, 2013, p. 37)

This also partially explains the problems experienced in the green skills sector regarding inadequate green skills planning mechanisms and the problem of a skills system reactive to the wider environment and emerging green economy planning. Moreover, a mechanistic alignment-mirroring approach threatens to suffocate creative and innovative grant-making potential, and could simply reproduce the TINA formation referred to in the opening paragraph of this chapter. Brousseau's (2004) study on effective grant-making organisations claims that most of these successful grant-making organisations have demonstrated highly defined creative and innovative capacity, for example, the ability to cross boundaries and mix worlds. Unfortunately, an alignment-mirroring approach simply limits any possibility of creativity and innovation because it presupposes the reflection and guarding of predetermined image/s, and is largely reproductive of the problem alluded to by Motala (2009) in the South African skills planning landscape.

Thirdly, it does appear that the NSF's funding agenda is determined through a process of mechanistic alignment and mirroring of the strategic policy indications, be these directly or

indirectly. Section 7.2.5 below provides further detail on how the actual process of alignment unfolds. The following quote from the NSF Strategic Plan (2011/12-2015/16, p. 17) strongly advocates the alignment-mirroring practice of making sense of policy inferences for national skills funding purposes:

Alignment to key strategies of government through the NSF's 'Strategic Framework and Criteria for the Allocation of Funds'.... 'National priorities aligned to the key strategies of government'.

The National Development Plan 2030 is the most important strategy of government aiming to eliminate poverty and reduce inequality by 2030. It serves as the single most important longer term umbrella strategy to which all strategies of government must be aligned.

While important at one level for start-up processes to ensure relevance and accountability in the skills planning system, adherence to a narrow form of alignment and mirroring can become reductionist, fundamentalist and exclusive in nature because the philosophical substratum of these policy directives remains unchallenged and could be questionable given the wider range of concerns that a society needs to take into account (other than those framed by neoclassical and neoliberal economics). The fact that these policy expectations are accepted, imitated, and mimicked without taking into cognisance any wider potential alternatives, tends towards compliance with the status quo. This can hamper resource or funding allocation towards meaningful and longer term change.

The urge for compliance driven by an alignment response orientation has emerged as a dominant feature of grant funding within the public administration environment, not only in South Africa, but also elsewhere as accountability within a given paradigmatic frame is sought. With the NSF experiencing pressure from the Department of National Treasury and the office of the Auditor General to perform according to due mathematically-oriented standards, the urge for compliance response modelling is obviously understandable (HRDC, 2013). Thus, modern bureaucracies are often not the easiest platforms from which to drive social innovation and transformative change. This has implications for how the green skills sector may engage with the NSF as a grant-making institution.

The NSF's alignment-mirroring method of making sense of policy to provide for its funding strategy formulation needs could also be seen as a form of discursive practice. McLaren (2008, p. 72) stated that discursive practice "refers to the rules by which discourses are formed, rules that govern what can be said and what must remain unsaid, who can speak with authority, and

who must listen”. The following quote by Van Niekerk (2009) aptly betrays the limitations of this kind of policy sense-making awareness:

Mirror, mirror on the wall. Who is the fairest of us all?’ In the words of the snow queen from Snow White and the Seven Dwarfs, we hear the insecurity of this approach. It is an approach that is passive and lacks responsibility. For in following this approach we can say that we were only following orders when bad things happen and abdicate all responsibility for the outcome when applying it to the text, theory, natural process or human doing. We follow the rules, needing to be told what to do, but do we understand the meaning that gives the words texture. It is a superficial approach for in following what we are told without engagement we also lack the necessary sense making of our own position, our own experience. (Van Niekerk, 2009, p. 280)

Moreover, in the face of the urge to satisfy the status quo in terms of national funding policy expectations, I invoke the powerful words of the educational philosopher Green in her seminal work, *The Dialectic of Freedom* (1988, pp. 12-13), on the purpose of education (which is not unlike the critique of Daly cited above on economic thinking and associated forms of education):

... to become empowered to think about what they are doing, to become mindful, to share meanings, to conceptualize, to make varied sense of their lived worlds. It is through education that preferences might be released, languages learned, intelligences developed, perspectives opened, possibilities disclosed. I do not need to say again how seldom this occurs in our technicized, privatized consumerist time. The dominant watchwords remain effectiveness, proficiency, efficiency and an ill-defined, one dimensional excellence. Reforms or no, teachers are asked to teach to the end of economic competitiveness for the nation... Whether the students are rich or poor, privileged or deprived, the orientation has been to accommodation, to fitting into existing social and economic structures, to what is given, to what is inescapably there.

Proponents of the alignment-mirroring approach generally assume that texts, in this case policy texts, are pure, unbiased and normative processes (Van Niekerk, 2009). The following statement by Van Niekerk (2009, p. 274) describes how widespread, prevalent and dominant this kind of experience actually is:

...in modern mass culture and consumerism, narcissistic kinds of experience are stimulated and structured through widespread illusions in society that things can get better if one mirrors oneself according to these idealised dreams and fantasies. These illusions are portrayed in advertisements and acted out by role models in the media. The mirroring of these different ideals signifies subtle forms of fundamentalism in modern societies. This could be a form of Narcissism, which revolves around the visual metaphor of Narcissus in Greek mythology, who looks gapingly into a pool at his own image while falling in love with his image. This becomes important because the mirroring – re-mirroring – appropriation procedure appears in many areas of modern life.

Furthermore Fromkin and Rodman (1988) also agreed that descriptions of events and behavioural patterns are seen as direct references of the referent. Hence it appears that the NSF also does not escape the dominant presence of being surrounded by mirrors in search for the presence of an untarnished, socially appreciated institutional personality.

7.2.2 Why is the NSF's policy alignment approach inadequate?

The following quote from Respondent 8 during the interviewing process alerts one to the dangers involved in uncritically mirroring national policy funding imperatives:

Hence it is critical that we are cautious that even the stated objective of aligning our funding to government priorities doesn't unintentionally drive us back into a shotgun approach whereby we try to be everything to everybody at the same time.

The NSF's alignment approach can be seen to be inadequate for two reasons, namely a) this method of mirrorisation of policy indications appears to lean itself to a reductionist and exclusionist hermeneutic sense-making awareness orientation; and b) the re-imagination and emulation of policy assumptions embedded within the promulgated policy documents like the NSDS III could be uncritically appropriated without due consensual negotiation and interrogation (Van Niekerk, 2009).

Firstly, the aim of mirrorisation is to re-image, re-mirror, mimic and emulate the text. In our case, these texts are strategic policy indications or imperatives. The text, policy or document is viewed as law that ought to be accepted without any questioning whatsoever. That which is portrayed by policy becomes the ideal and must be mirrored as the latest relevant issue or concern. According to Benjamin (1936) and Stockholder (1987), the mirroring to re-mirroring to appropriation scheme is extremely dominant as ordinary people in life idealise and fantasise about food, clothing, style, music culture and so forth, i.e. the reproduction of consumerist, free market neoclassical and neoliberal economic system dynamics (Van Niekerk, 2009).

The second reason why the NSF alignment approach appears to be inadequate is because assumptions derived from the stated policy documents are presupposed to be 'funding law incarnate' without due critical reflection. I will attempt briefly to illustrate that the assumptions and theories underlying these policy mechanisms manifested in policy documents are not without question or doubt. The discussion henceforth is framed to expose a triple-layered theoretical substratum, namely a) a skills discourse, b) human capital theory (HCT) discourse, and c) neoliberal discourse, all of which provide further depth to the opening argument of this chapter.

The assumption that a lack of skills and associated mismatch in relation to the needs of industry are responsible for the high national unemployment crisis that is currently hinging on the 37% rate has become dominant (Motala & Vally, 2014). The responsibility for the challenge of unemployment has been squarely placed on the shoulders of education and training without due consideration for the structural economic conditions which inherently remain capitalistically oriented (Allais, 2012). Also, if vocational skills are deemed necessary, these skills are inherently driven by context-specific requirements and could potentially be better enhanced through workplace based training (Motala & Vally, 2014).

Furthermore, the argument for skills development is structured around the notion that a huge inadequacy of skills exists, which constricts the economy in its growth. Associated with this is the view that the education and training system is unable to produce the required skills necessary to satisfy the requirements of industry. Therefore, with this base-line argument, the lack of skills emerges as the main challenge and it becomes the reason for weak economic performance, and therefore high unemployment rates, lack of productivity and slack global competitiveness (Motala & Vally, 2014; Motala, 2009; Allais, 2012; Allais & Nathan, 2014).

Human capital theory emerges from this kind of argument, associated strongly with the current skills discourse in South Africa (Motala & Vally, 2014; Motala, 2009; Allais & Nathan, 2014). Prior to the advent of the human capital theory in the 1960s, the neoclassical economics substratum of capitalist thinking struggled to make sense of labour orientations. The neoclassical sense-making orientation to skills development was driven mainly by mathematical approaches framed within fabricated assumptions and narrowly linear equations of supply and demand. The field of labour economics concentrated more on the sociological dimensions, for example, strikes and collective bargaining issues (Klees, 2014). The emergence of human capital theory reduced labour economics to the supply and demand trajectory with an enormous emphasis on the supply side. The entire SETA structure in South Africa is based on supply and demand analyses, as this form of logic informs the design of sector skills plans. In this scenario and discourse, education as a skills investment opportunity becomes apparent, to become more productive and to increase an individual's chances of finding a job. On the supply side, skills acquirement mainly benefits the workplace and specifically within the context where the skills are required and henceforth embraced. Some of the blind spots of the human capital theory are the neglect of adequate analysis of demand side dynamics. Subsequently, this downplays issues such as the emergence of job precarity (Standing, 2014)

under the neoliberal capitalist trajectory and the role and responsibility of state and business in sustainable job creation. It also leads to a discounting of the value of skills acquisition beyond the environment of the workplace (Allais & Nathan 2014; Klees, 2014), and thus also narrows the concept of education to ‘training for work’.

According to Motala (2009), the acquisition of skills competencies and related knowledge are very important for the development of a healthy nation. However, the reductionist tendency of only making sense of skills and education as a tool towards capitalistic goals and employment creation is extremely constricting. Motala (2009) adds that global economies driven by the capitalist motive have not been renowned for employment creation endeavours. The main cause of high levels of unemployment is triggered by structural conditions of the economy, which emerges as a critical component in an economic system and the sustainability thereof. The economic progress driven by the capitalist motive inherently requires the provision of excess labour. Conservatively, during the post-apartheid period, South Africa’s ‘surplus’ rate has been around 28-30%, with the NEETs referred to earlier (in Chapter 5 section 5.2) being but a part of this. Also, knowledge emerges as a fundamental requirement to develop not only as a worker employed at a company but for a citizenry that is able to make informed decisions on issues pertaining, for example, to elementary rights such as numeracy and literacy and accessing public resources, as well as having a high level of awareness of multiculturalism and associated social values (Motala, 2009; Motala & Vally, 2014; Klees, 2014). One can extend this to knowledge of social-ecological concerns such as climate change, biodiversity loss, and degradation of life-support systems (i.e. the ‘green’ issues which are the focus of this study).

Underlying human capital theory is neoliberal economic discourse which has become central, especially since the 1980s. This discourse identifies some limitations of earlier forms of capitalism as being too reliant on state relations, and advocates the requirement for government to become less interventionist and corrective. This discourse furthermore encapsulates the notion that capitalism is inevitable, beneficial and justifiable and that the promised ‘trickle down’ effects will be realised; it is the primary source of the TINA complex referred to by Bhaskar (1998b) and challenged by Naess and Price (2016); Raworth (2017); Daly (1999) and others. Human capital theorists believe that, in general, challenges associated with this discourse are not so great, with the reason being that most of the challenges are due to too much government meddling and interference. It is assumed that this kind of thinking about economics pushes the borders of economics over into the ambiances of politics and other social domains.

Inherently it tries to promote the private-oriented industry solutions driven by market opportunities at the expense of the needs and challenges facing public sector organisations, education institutions, social justice, health and well-being institutions, and the environment itself as the emergence of climate change injustices indicate (Bhaskar, 2010). Therefore government's responses in the context of education and training are pessimistically viewed and perceived as less effective, and education and training institutions also become commodified, privatised and in the service of free market capital and enterprise. However, human capital development and skills training interventions remain extremely important (Klees, 2014), and there is often pressure to re-direct state resources and funding in the service of neoliberal capital interests, away from public sector interests and public good concerns.

Motala and Vally (2014) cited the following extract from Neville Alexander, warning us against the dangers of human capital theory:

Once you are on that road [human capital theory] – and most capitalists business ideologies are on that road – it is very easy to fall into the kind of discourse where one or another group of people is considered to be 'superfluous', 'over-concentrated', etc. The Hitlers and the Fronemans of the world eventually forced these people into railway trucks or lorries and transported them to their death in the gas chambers, or to their last graves in the many Dimbazas of our beloved country...Once the commodity value of people displaces their intrinsic human worth or dignity, we are well on the way to a state of barbarism. Unless and until we bring back into our paradigms, and thus into our social analyses, the entire human being and the ways in which human beings can live fulfilled lives beyond their mere economic needs we will continue to promote anti-human philosophies and policies that ultimately tend to work to the benefit of those who have, and to the detriment of those who do not. (Alexander, n.d., in Motala & Valley, 2014, p. 1)

In the light of these toxic limitations of human capital theory as alluded to above, it is my view that the danger of aligning skills development funding strategies with national policy frameworks without critical reflection results in an expectation that funding ought to support certain priorities at the cost of other funding possibilities deemed not so important. The NEET factor is a case in point: the domain of sport is an influential place of interest and transformation for young people and yet the NSDS III does not recognise this sphere as a funding priority area. The number of young people filling soccer stadiums to capacity attests to the fact that sport is a relatively high priority aspect of transformation. For whatever reason, the fact that although young people are centralised within the framework of the NSDS III for skills training, sport is not seen as a possibility of transformative praxis. Hence the chances of receiving funding grants for skills training interventions in the area of sport is very unlikely. Overall, the NDP, which provides the main policy framework guiding the NSF, has also come under fire for neoliberal

tendencies or at the very least for being ambivalent in relation to neoliberal tendencies. These quotations from Mbuso Ngubane (2014), KwaZulu-Natal Regional Secretary of the country's largest labour union (COSATU) and NEHAWU, one of the unions that until recently were affiliated with COSATU, indicate some of the lines of critique of the NDP as major national policy guiding development in the country:

... we call on the ANC-led government to dump the National Development Plan (NDP) because of its embedded neoliberalism. Like the imposition of Gear in 1996, it accepts the macroeconomic parameters as given, and worsens our vulnerability to world capitalist crisis. We dare not allow it to become the policy vision for the country for the next coming twenty years, for that would lead to the same results as we have suffered under existing neoliberal policy: social tensions rising to the point of explosion. (Ngubane, 2014)

An example of how the dominant skills discourse and its human capital substratum have impacted on national skills funding can be found in the mission statement of the NSF: "To provide funding for the national skills development towards a capable workforce for an inclusive growth path" (NSF, 2015a, p. 10). This mission statement clearly mirrors government Outcome 5 of the 12 performance outcomes which states the following: "A skilled and capable workforce that shares in, and contributes to, the benefits and opportunities of economic expansion and an inclusive growth path". This clearly illustrates how the NSF has mirrored and aligned national policy in funding strategy formulation. The focus on an 'inclusive' growth path, is one of the indications of ambivalence embedded in the NDP, where it wishes at the same time to address the major problems of unemployment, poverty and access, while still supporting an essentially neoliberal state and economic model. This ambivalence is also captured in the as yet unrealised objectives of establishing South Africa as a 'developmental state' where the state plays a stronger role in defining and managing the efficacy of economic and social development systems than the market (Fritz & Rocha Menocal, 2006).

The NDP signals the state's intentionality in this direction, but fails to embed it in development policy in practice as also noted by Motala and Vally (2009), Allais (2012) and others, with consequences for how the skills system unfolds. Here it is noted that developmental states as emerging in the East tend mostly to be more authoritarian, but that the South African context is "counterfactual, in that popular participation, political inclusion and representation are essential to the theory, practice and (form?) of the South African developmental state" (Edigheji, 2010.). Interestingly, for the discussion on green skills funding, is that there is a debate on how it might be possible to deliver on the democratic developmental state in South

Africa (Gumede, 2009), which was being led by the Development Planning Division of the DBSA (who are also partners in implementing the Green Fund). This document frames the developmental state as:

The idea of 'a centralised state interacting with the private sector from a position of pre-eminence so as to secure development objectives' (Wade, 1990) is generally called the 'developmental state' theory (Johnson, 1982; White, 1988) ... In successful developmental states the state 'uses' the market and coordinates investment plans in such a way that it 'crowds in' rather than 'crowds out' private investment. This ability of the state to 'govern' the market, and to rally business, labour and other social partners behind its efforts, differentiates developmental states generally from other developing states ... Developmental states have 'active development strategies, in particular industrial policies (ibid., 61) ... The developmental states also used social policies to great effect, focusing on 'non-state entities such as families and firms, with the State guaranteeing the implementation of social welfare programmes' (ibid. 64). Effective economic coordination is an absolute priority, while they strive to 'minimise bureaucratic failure' (Amsden, 2001). (Gumede, 2009, pp. 4, 5, 6)

The following quote from the Director General of DHET, cited in the NSF's annual report (NSF, 2015c, p. 22) shows how reductionist expectations of the NSF framed mainly in terms of dominant economic and state policy expressions have become normalised in the South African context:

The National Skills Fund (NSF) will continue to be responsible for skills development aligned to national development strategies and priorities. The National Development Plan (NDP) recognises education as a key tool to South Africa's long-term economic prosperity and as an investment in its future.

As noted above there is ambivalence embedded in the NSF, and given the mirroring approach also noted above, one may assume that this will be reproduced in the work of the NSF as an associated state entity. Another example as per the NSF Strategic Plan (2015a) that illustrates a somewhat one-sided and reductionist tendency of how the skills discourse is affecting the agenda of the NSF, relates to the fund's response to the country's NEET challenge exclusively in economic and employment terms:

The recent report from Statistics SA on Youth employment, unemployment, skills and economic growth revealed the following key areas, which will focus the NSF's funding mainly towards specific beneficiaries with the highest need for skills development towards employment and economic participation.

Following this national policy challenge (also discussed in Chapter 5 section 5.2), the NSF Strategic Plan (NSF 2015, p. 25) cites the following statistics relating to the NEET challenge:

- a) 7.3 million young people are unemployed which equates to a 40% unemployment rate, and
- b) the highest unemployment rate is amongst young people with an education level lower than

matric and the second highest amongst those with at least a matric level qualification. The NSF's response to this challenge is according to the following funding policy priorities: a) increasing new entrants into the workplace; b) workplace based training; and c) promoting employability and sustainable livelihood through skills acquisition. This reflects some of the ambivalence in the NDP, i.e. there is a commitment to learning and training for work, but also some commitment to supporting skills necessary for sustainable livelihood development, which could potentially encompass skills development initiatives that are more widely constituted, not only in the service of work and jobs.

Discussing the abovementioned notion in more depth, Motala and Vally (2014) suggested that current thinking on the relationship between education and society is largely ignorant of the comprehensive impact that education and or skills development ought to have not only on the economy but on society at large. They further cautioned against the temptation that is confronting policy makers and delegated policy consultants to imitate policy approaches from developed countries like Europe and North America. Policy responses from these countries emanate from different contexts altogether and should not be embraced without due critical reflection. Huge investments are being made with the expectation that beneficiaries or 'products' will satisfy the demands of industry. Brown, Green and Lauder (cited by Vally & Motala, 2001, p. 5) stated:

The increasing tendency for the faith bestowed in the educational system to take the form of a secular religion is manifest in the flood of complaints from politicians and employers about the failure of the educational system to serve the needs of an advanced economy, especially at a time of high youth unemployment.

The National Environmental Skills Planning Forum's (NESPF, 2014) response to the DHET's (DHET, 2015c) Framework for Annual Report on Skills Supply and Demand made the following input in terms of possible gaps in the framework. The response acknowledges that the DHET's Framework is clear about the importance of effectively responding to economic growth, the sharing of resources and social inclusion, but laments the reductionist articulation of research assumptions and indicators which exclusively betray an economic deterministic intent and interest, as outlined below:

From the perspective of skills for the Green Economy we would, however, like to request the following refinements to the framework to better allow SA to better plan for green skills:

- Although the framework refers to the need to respond to economic growth, social equity and shared resources, the indicators and trajectories of analysis are almost exclusively of an economic nature.

- Society needs better protection of natural resources for social development, well-being, climate resilient development and the public good. These are not always linked to economic development, and a wider framework for indicators and analysis is therefore needed.
- Recommendation: We recommend that indicators need to be included that relate to the public health issues of water quality and security, service delivery, and climate resilient sustainable development.
- For example, indicators could be more strongly aligned with strategic planning documents such as the Long Term Adaptation Scenarios of government for responding to climate change in which water, agriculture biodiversity and other critical concerns are analysed for future implications for South Africa's development. (NESPF, 2014)

It is interesting to note the recommendation to consider a wider range of policies as informants for skills planning in South Africa. As can be seen from the above, the National Environmental Skills Planning Forum's (2014) response signalled a greater need for societal protection of natural resources more along an inclusive growth trajectory towards things like social development and the public good. Hence the appeal for greater urgency to embrace a more wholesome approach to indicator development that covers, for example, issues like water quality, security and climate resilient sustainable development (NESPF, 2014). Along a similar trajectory, Respondent 14, commenting on the emergence of green skills from a green skills research viewpoint noted that: *"Green skills emerges along the following pivotal angles namely: a) social justice, b) technology, and c) regulation"*.

Further, Motala and Vally (2014) cited the work of Williamson as early as the 1970s, illustrating the enigmatic nature of the relationship between education and the economy:

Whether, therefore, education can play a role in promoting economic development or in hindering it, is something which cannot be assessed using the crude quantitative techniques of economics.... Programmes for education cannot be discussed outside of the broader social ends they reflect. Ends themselves are not, however, disembodied; they reflect the interest and power of different social groups. Planning in education is therefore never neutral, never a matter reducible to criteria of technical efficiency... The networks of international aid, the increasingly opaque workings of education ministries may mask the political issues but they exist, nevertheless.

The recently gazetted National Skills Development and SETAs Landscape Proposal (South Africa, 2015) is already proposing that the language of 'occupations' should become the new normative terminology of skills planning. This approach is an attempt to further concretise the link between the workplace and education and training institutions. This Proposal states that the language of occupations should be one that: "informs skills planning for employers,

SETABs, NSF and DHET” (South Africa, 2015, p. 4). The emerging NSDS IV will unfold according to four ‘occupation based’ levels. The following notions are striking and clearly illustrate a strengthened relationship between skills development and industry by placing the demand of skills within the matrix of occupations namely: “priority occupations in demand”, “occupations in demand” and “occupation-based”. One can surmise that only if green skills are adequately articulated in occupational discourse associated with green jobs and green work, will the NSF and other state institutions be able to support green skills development, despite the call from the NESPF above for a broader view. The emergence of NSDS IV is characterised by the centralisation of the Organising Framework of Occupations (OFO), which is a coded occupational classification system. The Organising Framework of Occupations (OFO) categorises groups of work descriptions according to occupations portraying similarity of skills and knowledge. The classification thereof assists the establishment of a normative language across the post-schooling system within the context of occupations (South Africa. DHET, 2013a; South Africa, 2015). Respondent 7 pointed to the importance of the OFO for the NSF in relation to the skills planning function:

The OFO becomes the fundamental basis of skills requirements. This is in line with the White Paper expectations in terms of the DHET skills planning unit. Green occupations should be part of the OFO. If the OFO is weak, it will detrimentally affect the whole PSET system. The OFO can guide the NSF’s funding strategy formulation.

Despite the noble intent of the Organising Framework of Occupations (South Africa. DHET, 2013c), it does not comprehensively express the nature of South Africa’s green occupations adequately because it relies too much on the American framework as an interim measure (Ramsarup, 2017). The need therefore arises to further improve the Organising Framework of Occupations for South Africa’s green occupations (NESPF, 2014; Ramsarup 2017), an issue which is receiving attention in the Green Fund Skills System Building Programme (NESPF, 2014), although capacity for this enormous task remains inadequate (see Chapter 3).

Furthermore, Balwanz and Ngcwangu (2016) contended that the notion of ‘skill’ has seemingly been reclassified as ‘occupation’ on the OFO. They flag the following limitations in this respect: first, the OFO identifies ‘university lecturer’ as an occupational category but fails to indicate any field of expertise in this regard. No one would hire a university lecturer where the field of expertise is absent. Then, the OFO makes provision for three different categories of pharmacy, for example ‘Hospital’, ‘Industrial’ and ‘Retail’ pharmacists. The detailed breakdown of the different occupational categories could be an example of overkill in terms of specifics and certainly is from a national skills planning perspective.

Moreover, Allais and Nathan (2014, pp. 103-124), following a transition study approach to investigate the transitioning from education to the labour market, stated the following in their concluding research findings phase in respect of this matter:

The arguments above question both the notion that it is individuals' lack of skills that is a primary determinant of their unemployment, and that resolving a 'mismatch' between education and work will solve this problem. On the contrary, it is the structure of the labour market as well as broader social policy that determine the quality of vocational and professional education.

The NESPF (2014), in terms of demand analysis and measurement, expressed the need for the development of wider measures in addition to employer demand for calculating green skills demand and wider range data instruments. They noted the huge demand for water and energy efficiency in society as justifying a more inclusive approach to understanding demand analysis more comprehensively. More recent studies on green skills in various sector-based value chains show the importance of paying attention to public sector compliance competence as a critical skills demand in the green skills sector, which could easily be missed if the focus were on economically profitable occupations only (NESPF, 2014).

Hence, based on the discussion above, I suggest that the policy alignment approach through mirrorisation, embraced by the NSF, is potentially too narrow a frame for guiding the work of the NSF, making it vulnerable because of the possibility of allowing funds to flow in ineffective ways. The practice of mirrorisation in funding policy alignment embraces the inherent risk that funding could quite possibly flow along a limited and reductionist funding trajectory relative to the intent and extent of the embedded funding policy assumptions presupposed in national strategic policy frameworks like the National Skills Development Strategies.

Ignoring the danger of mirrorisation through the NSF's funding policy alignment practice could potentially have implications for broader society, especially in relation to longer term, and broader societal and social-ecological system benefit. In this regard, Motala (2009, p. 2) argued against the reductionist tendency of viewing education as simply a tool of economic expansion and pointed towards the broader social ramifications thereof as follows:

Reducing the role of knowledge production to an instrumental role serving the interests of the business sector alone is wrong, self-seeking and myopic. Limiting the discussion to skills and knowledge for the 'economy' is also problematic because in effect it places the blame for the lack of skills and knowledge on the poor themselves or on the government alone. The poor are blamed for a predicament they are placed in through historical circumstance and the implication that that they have 'no one to blame but themselves,' in the language of the skills discourse is insulting and hypocritical, especially since these views are held by the very ideologues that supported apartheid.

The NSF's funding policy alignment practice in mirroring national strategic policy imperatives could be seen as being too simplistic because it is based on an uncritical acceptance of national policy indications as prescriptions. Along this funding policy alignment trajectory, the NSF could quite possibly be mobilising resources toward economic growth at the cost of much wider social and environmental multiplier advantages.

7.2.3 What are the causes of the re-emergence of the alignment-mirroring approach?

According to Van Niekerk (2009), the causes of mirrorisation could be ascribed to a number of reasons. Firstly, the phenomenon of globalisation has left people insecure about almost everything in life. Consequently, the need arises to reclaim and reaffirm that which once appeared to be safe and beyond question. Globalisation has ushered in a reason and a cause for people to cling to what is known and safe in an unsafe environment of shifting ideals, relative norms and questionable values. The public service policy environment does not escape this reality, not by far. In trying to mobilise public service efforts, the following statement by the Director-General of the Department of Higher Education and Training emphasises the continuation of the mirroring practice of strategic and operational plans by institutions like the NSF belonging to the DHET:

The Department and the institutions for which it is responsible, must align its strategic and operational plans and programmes with the key national documents such as the National Development Plan, New Growth Path... (NSF, 2015a, p. 8)

Secondly, according to Van Niekerk (2009), the many success stories of imitation and mirroring emanating from natural processes and natural science theories have renewed confidence in mirroring practices. Those who have been at the forefront of technological designs have built further upon this tendency through re-mirroring and imitation by producing user-friendly technologies. He noted Walter Benjamin's (1936) statement below regarding humanity's long history of achievements as a result of effective mirroring practices:

During long periods of history, the mode of human sense perception changes with humanity's entire mode of existence. The manner in which human sense perception is organized, the medium in which it is accomplished, is determined not only by nature but by historical circumstances as well. (Benjamin, 1936, p. 222)

This factor has also impacted on the spectrum of national skills development funding, as already outlined above, but also as reflected in the Minister of DHET's comment in the foreword of the NSF's Strategic Plan (2015-2020), encouraging the continuation of a mirroring funding policy alignment practice (NSF, 2016b, p. 4) as follows: "The NSF must continue to

be responsible for skills development aligned to national development strategies and priorities”.

Lastly, Van Niekerk (2009) contended that the danger of mainly making sense of texts through interpretation, for example, in this case policy documents, opens up the possibility for varied interpretations. The risk of varied and conflicting interpretations of funding policy indications could have serious repercussions for a national fund like the NSF. Therefore, it is understandable that mirroring through an alignment approach becomes an easy way of managing possible confusion and uncertainty. Van Niekerk (2009, p. 289) succinctly exposed the fallacy of an interpretation mode of engagement:

The clarion call of every mirroring and imitating fundamentalist in the world today can be paraphrased as follows: “Please be pure and perfect by being obedient and truthful through the appropriation of the mirrored and imitated standardised rules of the person or group in your life world”.

7.2.4 How was the inadequacy generated?

In order to understand how this inadequacy was generated, it becomes necessary to take a few steps back in time. According to Ngcwangu (2014), the dawn of a new South African reality produced major policy reforms, especially relating to education and training. The objective of these reforms was to correct the imbalances brought about by apartheid policy constructions. McGrath, Badroodien, Kraak and Unwin (cited by Ngcwangu, 2014, p. 244) referred to this period as a ‘low skills regime’. Henceforth, the development of policies had to contribute mainly to confront legacy concerns such as equal access and quality education for all. The skills development discourse emerged within a context where ideological and political expressions collide in the quest to effectively respond to the legacy skills challenge. Some efforts were directed to redress the historical inequalities while other attempts tried to focus on economic and social expressions (Ngcwangu, 2014).

According to Kraak (2004), the promulgation of the Skills Development Act, Act 97 of 1998, and the Skills Development Levies Act, Act 9 of 1999, ushered in a new season of skills development. The birth of the SETA establishment was witnessed, together with the dawn of the NSF as already described in Chapter 4 and 5. The skills development machinery was mainly driven by stakeholders, like the then Industry Training Boards. Henceforth, the SETAs and the NSF became main drivers of the NSDS and emerged as key stakeholder engagement platforms. Furthermore, Kraak (2004, p. 119) asserted that: “the construction of this new institutional

environment is the assumption that collective institutional pressures will oblige individual employers to increase their investments in and co-ordination of skills formation”.

As described in some detail in Chapters 4 and 5, the NSF experienced severe institutional challenges after the establishment phase. For example, during the two NSDS periods, namely NSDS I (2001-2005) and NSDS II (2005-2010), the impact of the NSF was characterised by under-expenditure, high surplus balances and low performance (NSF, 2013a). However, the emergence of the NSDS III (2011-2016 as extended to 2018) has seen a more positive institutional shift in the NSF (see Chapter 4 section 4.6.1). The expectation of the NSF to continue along these lines was noted by the former Minister of DHET (NSF, 2011, p. 4):

Our country has entered a phase in our history where state resources have become very scarce. The NSF surplus, although they reflected part underperformance, presents the DHET with an opportunity to make significant investment and impact in human resource and skills development. We believe the NSF should occupy its rightful place in the post school system that of being a national skills fund. This implies the fund should focus on national priorities and provide resources to unlock or catalyse national human potential.

Moreover, in terms of the NSF’s current skills planning practices, as noted in Chapter 6 section 6.3.2, the NSF makes its funding decisions based on the ‘Strategic Framework and Criteria for the Allocation of Funds’, which as indicated earlier, was informed by other key strategic documents, for example, National Skills Development Strategy III (2011-2016, as extended to 2018) and the Human Resource Development Strategy of South Africa (2010-2030). The framework, in which funding areas were identified and prioritised (NSF, 2013a; NSF, 2015a), is agreed upon between the Department of Higher Education and Training and the National Skills Authority (NSA).

Within such a mandate, the identification of funding priority areas could be the easy part of the challenge: artisan development, for example, has been cited by the National Skills Development Strategy III (2011-2016) and the MTSF as a national priority area and recently, skills development for youth (the NEETs) has been prioritised nationally. But within these larger categories of priority, it is not clear as to what kinds of training programmes are really needed or indeed are possible. What kind of artisan does the country require? Which learning pathway should be prioritised, given the optional routes if any? Also, based upon the emerging green economy expectations, what are the implications for green skills on artisan development? Here it is noteworthy that a DEA (2010) study identified a significant shortage of environmental technicians in the country, few of which were being captured in skills planning

systems due to a re-active environmental skills planning system and poor skills intelligence. Thus this form of artisan was not prioritised in the wider discussions on artisan training and remains more or less neglected, except for interventions around solar water heating artisans and some water-related artisan training. The country still lacks a refined understanding of this area of artisanship, leaving it under-defined and thus also excluded from the national funding prioritisation streams (Ramsarup, 2017).

Related to this, in terms of programme financials, the following finding by a National Treasury study accentuates the need for more effective skills planning practices. According to the NSF Expenditure Performance Review Report (2014a, p. vi), the NSF expenditure thresholds give considerable space to the Department of Higher Education and Training to influence the selection of projects. A case in point is the NSF's contribution to assist the technical vocational training system (TVET colleges) in funding their access demand to the value of about 58% through the National Student Financial Aid Scheme during the 2012/13 financial years.

This review report (NSF, 2014a, p. vi) also made the following finding in relation to the lack of the NSF's decision-making capacity in terms of funding programme selection:

The effectiveness of the National Skills Fund depends on identifying the training programmes that (i) provide pathways for the school leavers and the unemployed to enter into the post school education and training system, (ii) are relevant to industry and business, (iii) allow for the development of scarce and priority skills within the country. Deciding on the right programmes to support financially requires accurate and up-to-date information on the demand for specific professions and skills in the work place and existing supply trends.

The report further indicated the lack of capacity within the NSF to undertake its own research and skills planning. The fund relies on secondary role players within the post-school education and training system to provide information on skills demand and supply needed to inform training programme selection. This state of affairs is a very serious constraint to the pro-active functioning of the NSF as a multi-billion rand fund (NSF, 2014a). The Expenditure Performance Review Report (NSF, 2014a, p. vii) also made the following proposals to address this challenge of training programme selection:

a) The NSF should consider establishing 'Information Sharing Protocol (ISP) with the DHET to determine the terms of reference of the information commonly shared.' b) the NSF should build stronger stakeholder relations with trade associations, industry partners and other role players to better comprehend changes relating to skills in the technical and vocational sector, with a special focus on occupational skills and, c) the NSF could, in line with its five-year strategic plan, identify new training programmes

or improvements to existing programmes to cater for dynamic requirements of the skills development landscape.

Clearly, the NSF remains under pressure to deliver on the huge expectations created by the skills development legislation and policy matrix, even if it understandably means mirroring the DHET's policy commitments. Perhaps this is an important, if incomplete, starting point for the NSF and its functioning.

7.2.5 What are the generative mechanisms responsible for the inadequacies?

In this section I shall discuss three underlying generative mechanisms that interact to create the abovementioned situation that is influencing and shaping NSF grant-making procedures and also the potential for the NSF to engage with green skills intelligence and planning. As noted in Chapter 2 section 2.5, according to Bhaskar (2010) generative mechanisms have causal powers that operate in open systems, often in 'generative complexes' which collectively shape phenomena at the level of the actual and the empirical. The generative mechanisms outlined below, in my view, operate in such a 'generative complex' influencing the NSF and its operations.

- ***Generative mechanism 1: Absence of an adequate national mechanism for skills planning and skills intelligence***

As rightly pointed out by the National Skills Development Strategy III (2011-2016, as extended to 2018), the absence of a national mechanism for skills planning is once again emerging as key in challenges to ensure an effective national skills planning system that includes green skills requirements and expectations. Goal 4 of the Strategy states: "Establish a credible institutional mechanism for skills planning", thus already identifying the huge national challenge in terms of an improved, more informed and pro-active skills planning system. This important responsibility, according to the White Paper for Post-School Education and Training (South Africa. DHET, 2013a), is part of the mandate of the Department of Higher Education and Training, and according to the National Skills Development Strategy III Implementation Report (South Africa. DHET, 2013b), a dedicated research unit ought to be established within DHET to support the skills branch. The unit should create a mechanism for skills planning as part of the DHET's Labour Market Intelligence Partnership (LMIP). The absence of a skills planning mechanism as envisioned by the National Skills Development Strategy III, makes it difficult to pursue effective grant-making allocations from an informed orientation. It is therefore assumed that skills planning is basically a research and knowledge management

function (South Africa. DHET, 2015d). To address this gap, the DHET established the LMIP which was implemented as a partnership between government and national research institutions by the Human Sciences Research Council to “do research and convene policy roundtables in support of the South African government’s goal to build a national skills planning mechanism” (South Africa. DHET, 2015d). Launching this initiative in 2012, the Minister of DHET stated:

The LMIP research project marks an important step in contributing towards the creation of a credible labour market intelligence framework - the establishment of a functional interface that will ensure better information gathering, analysis and overall systems synergy in pursuit of a skills development agenda that is developmental, forward-looking and embedded in empirical analysis.

In 2016 the LMIP released the first national report on skills supply and demand in South Africa. In its foreword, the Director General of DHET stated:

The Department of Higher Education and Training has identified the provision of credible information, analysis and signals on the demand and supply of skills as an important contribution to the establishment of the institutional mechanism for skills planning in South Africa. (Qonde, 2016 cited in Reddy, Haroon, Powell, Visser, & Arends, 2016)

The report itself stated that “Only through understanding the complexities of how demand and supply interact is it possible to guide future investment and interventions, as well as support a move towards a more inclusive skills development path”(Reddy et al., 2016, p. 6). The study reviewed major supply and demand trends in South Africa and identified three different types of supply-demand mismatches, notably demand mismatch, educational supply mismatch, and qualification-job mismatch analysis. These findings provide useful insights into the labour market as it currently stands in South Africa and can therefore assist with more refined skills planning and therefore also resource allocations from the NSF. Some interesting findings that are also relevant to green skills planning at a broad level include:

- The economy and labour market shows a demand for high skilled workers, but there is a surplus of low skilled workers in South Africa (demand mismatch);
- There is a need to enrol and graduate higher numbers of Science, Technology, Engineering and Mathematics (STEM) graduates from both universities and TVET colleges, including technical trade related training programmes (educational supply mismatch);
- There is a qualification gap in that less than half of managers, senior officials, technicians and associate professionals have tertiary qualifications (qualification-job mismatch);

- Nearly half of the higher education graduates are employed in the community, social and personal services sector (qualification-job mismatch);
- A high proportion of the Science and Engineering graduates prefer to work in the financial services sector, rather than the manufacturing sector (qualification-job mismatch).

The report itself, however, follows the same dominant skills for economic logic that was critiqued by Motala (2009), as discussed above, and there was no mention of skills to address wider issues such as social-ecological degradation, climate change or public good concerns, beyond some (not well-defined) commitments to a need for broader skills for social development. The report made various recommendations to address the above issues, most notably the need to address economic disjuncture between labour supply and demand, by giving more attention to more labour-intensive models of growth in order to absorb the growing levels of people, especially young people into the labour market. It also recommended the need for a stronger evidence base for ongoing refinement of the skills intelligence systems in the country. Here, it suggested specifically that the DHET should work closely with Statistics South Africa and other relevant government departments to collect data for skills planning, especially by participating in and engaging with the National Statistics System of South Africa, and development of a wider range of instruments and “contextually appropriate methodologies” for skills demand analysis (Reddy et al., 2016, pp. 30-31). Here it is interesting to note that the DEA (2010a) and the SANBI/Lewis (2010) studies on skills demands in the environmental sector made similar recommendations for green skills intelligence system development in 2010, an issue that the NESPF Skills System Building Green Skills Project is trying to address (NESPF, 2014). It seems, though that there is yet to be a strong alignment between the LMIP and the green skills research systems, an issue that would need to be taken up via the DHET and its skills planning system in future (NESPF, 2014).

There is also increasing synergy between the LMIP and its research methodologies and recommendations and the DHET’s research agenda. Most recently, some good work has been done in terms of setting up a dedicated skills planning unit responsible for national skills planning needs. Outcomes of this are already visible, for example, the Minister of the Department of Higher Education and Training, in November 2014, gazetted a list of Occupations in High Demand. A total of fifty research projects have been produced to date, specifically relating to skills planning and skills intelligence requirements. Further outputs

relate to the development of an econometric model responsible for skills forecasting. The application of the model is currently being monitored, evaluated and reviewed on an ongoing basis (South Africa. DHET, 2015b). Clearly these developments with national skills planning and the improvement of national skills planning intelligence systems are significant for NSF planning processes.

However, the NSF needs to be intimately and critically engaged in the skills intelligence system of thinking to maximise the value of these processes, and to avoid further embedding the mirroring orientation commented on above. The absence of a dedicated NSF skills planning mechanism is as another important function within the NSF itself which is required to make sense of strategic funding policy indications (NSF, 2015b). Currently, skills planning within the NSF is practised as part of the organisation's strategic planning processes (NSF, 2015b, NSF, 2016b). This may not be adequate, as I was able to confirm during the interviewing and document analysis process informing this study. As reported in Chapter 5, the need for an integrated skills planning function within the NSF was identified by the Ernst & Young NSF Siyaphambili Project (NSF, 2016a). Respondents 5 and 6 from the core NSF leadership and Ernst and Young strategic partners indicated the need to avoid duplicating existing functions as per the Department of Higher Education and Training mandate in terms of skills planning. They pointed out, however, that a need exists for the NSF to do skills planning in an integrated fashion with the work of the Department of Higher Education and Training on the one hand, while also maintaining differential roles in terms of the fund's own unique funding context, on the other hand. The realisation of the integrated skills planning function within the NSF remains a work in progress (NSF, 2015b, NSF, 2016b; NSF respondents 5 and 6).

The lack of alignment of policy and skills intelligence practices (which emerges as a key generative mechanism) not only needs attention at the highest level of decision making (i.e. at DHET and NSF levels), but also at sector level, as was noted in the 2013 Human Resource Development Council study (2013, p. 58) which reviewed the South African skills system:

As has been identified in relation to skills planning, strategy is an area of weakness across the SETAs. This is an area where improvements are taking place, particularly in response to NSDSIII, which has been welcomed generally as providing a framework within which all structures in the skills systems can mobilize resources to achieve a common set of goals. However "strategic alignment" in many SSPs and Strategic Plans remains a table, setting out where a SETA is planning to do work in line with NSDSIII, NGP, NDP, IPAP etc. A table is developed putting NSDS objectives in one column, SSP objectives in the next, and SP and APP targets in the other columns. The focus is on compliance rather than on integrating and aligning.

Neither does the NSF have its own dedicated skills planning capacity to assist in the process of policy digestion. Another possible gap could be the fact that the NSF does not have a dedicated policy and procedure on how to do or conduct skills planning, and issue which was also noted by the Ernst and Young study (see Chapter 4). In support of the same notion, see the following comment by Respondent 10:

The NSF's structure does not allow it to move independently. The NSF is part of the DHET. DHET dictates how the NSF should allocate its funding. Even if the NSF's research unit comes up with recommendations, the final decision-making power vests with DHET. The NSF needs a research/ skills planning unit or capacity to inform the NSF's funding initiatives. The NSF can set up a tracking system and measure impact in terms of beneficiaries.

- ***Generative mechanism 2: Inadequate participation and democratic engagement***

The lack of stakeholder engagement in the process of skills planning emerged as another generative mechanism (i.e. inadequate attention to participation and democratic engagement) shaping why the NSF is following a funding policy alignment approach that mirrors national policy indications without adequate and broad enough policy alignment. Issues such as stakeholder collaboration (as discussed in Chapter 6) call for better stakeholder engagement in the process of making sense of national funding policy indications which should translate into more effective funding programme selection processes. The National Skills Development Strategy III (2011-2016, as extended to 2018) and other important skills development policy documents like the White Paper for Post-School Education and Training and the new regulations for the National Skills Development Strategy III, including guiding principles for National Skills Development Strategy IV and the emerging SETA landscape within the context of an integrated and differential post-school education and training system, are trying to improve the existing skills system in order to become more responsive to labour market requirements and demands. Hence, closer cooperation is required between education and training institutions and industry partners (South Africa, 2015a; Baatjes et al., 2014), and other social partners, as pointed out in this study. The Labour Market Intelligence Programme Report 2016 on national skills supply and demand also makes a recommendation to this effect:

More government coordination is needed, including stronger integration of government departments' growth strategies and strategies targeting skills development and education. Currently, there are many national- and provincial-level strategies that aim to promote local economic development and deal with unemployment. These growth plans must take into account skills requirements, or they will likely experience difficulties in implementation. Therefore, government departments must realistically estimate the skills needed for the implementation of the strategy and plan their human resource strategy in advance. (Reddy et al. 2016, p. 30)

A key issue here, however, is the scope of reference in terms of government departments to be included. In Reddy et al., (2016)'s work for example, no mention is made of the education and training system development recommendations in the National Climate Change Response White Paper (South Africa, 2012c) which proposes that government should "Establish a robust research agenda that, amongst others, focuses on quantitative research on the labour requirements for the green transition as well as on other societal adaptation strategies and needs" (South Africa, 2012c, p. 44). In emphasising the original design of the skills development policy frameworks, Kraak (2004) stated that the intention with the development of skills development policy was to provide better coordination, planning, enhanced stakeholder engagement and a value-added funding organisation, hereby granting SETAs more leverage to lead the way in education and training.

- ***Generative mechanism 3: Uncritical allegiance to underlying philosophical and ideological assumptions of national policy indications***

Another possible generative mechanism that could be responsible for the NSF's funding policy alignment or mirroring approach is the uncritical acceptance of underlying philosophical and ideological assumptions embedded within national funding policy frameworks, as has been discussed in some detail in the sections above already. It has been argued by Baatjes et al. (2014) and others like Motala and Vally (2014) and Allais and Nathan (2014) that the lack of skills assumption as the reason for unemployment has proven to be untenable. The reason for this is that the effective triumph over South Africa's triple threat of poverty, inequality and unemployment is dependent upon broader factors, especially substantive changes in the structural and systemic conditions embedded not only in the economic reality and paradigm (i.e. the dominance of neoliberal thinking and its infusion into post-apartheid policy), but also in the complex dynamics of society at large, including the challenges of globalisation, persistent social inequality and ecological degradation.

As indicated above in the discussion on the mirroring alignment orientation of the NSF, this generative mechanism is largely responsible for the NSF's approach to funding policy alignment and is related to the process of how the organisation is making sense of national funding policy indications. As an employee of the NSF, I draw on my personal experience to try and describe the process of skills planning and make reference to some of the inputs from respondents. I have found the analysis of the documentary sources too limited in terms of the how the NSF is trying to make sense, practically, of national policy funding frameworks. The

process is usually done through a number of strategic planning workshop exercises where NSF employees are called upon to assist in the process of sense-making when it comes to identifying NSF funding priorities (see Chapter 6, Diagram 1 and Section 6.3.3). As respondent 1 in this study noted, *“this process can clearly not be enough nor the most effective way in making sense of strategic policy direction and the implications for a funding agency”*, indicating that there must be more than workshop engagement that is required for substantive decision making (hence also the point above about the need for more in-depth engagement with skills intelligence and skills planning systems).

In terms of my own personal experience of being part of these strategic planning workshops, I have observed that although the NSF is funding numerous major research projects along the same trajectories of skills planning or in support of labour market information systems, no external stakeholders are part of the workshop engagements. As yet, no formal process is embarked upon to engage external stakeholders to strengthen the area of skills planning, which has the potential effect of reducing critical engagement possibilities to mere policy assumptions.

This generative mechanism is also related to the dominant presence of human capital economic theory at a substratum level of strategic and national policy frameworks, as already discussed above. This emerges as interacting with the uncritical allegiance to existent policy frameworks and influences the NSF’s funding policy alignment or mirroring practices, as discussed above. According to Motala and Vally (2014), at some point of the policy development process, a dominant economic theory must be agreed upon that needs to inform the policy articulation process. Unfortunately, human capital theory has proven to be extremely limited in assuming that education and training is exclusively and mainly an opportunity for employability and economic growth. Brown, Green and Lauder (2001) contended that the importance of human capital as the trademark of economic success and competitive advantage is extremely reductionist, exclusive and limited (Allais, 2011a; 2011b).

Human capital theory (HCT) has its origins in the work of Gary Becker and Theodor Schultz during the 1960s and 1970s. These proponents of HCT reduced human behaviour to the ability to quantifiably reason. For them, human beings ought to be defined with purpose, making sense of education as an investment opportunity towards the production of capital. At the core of their work is the assumption that if education is contributing value towards the economy then it can only be a form of capital in respect thereof. The emergence of human capital theory could

be attributed to the economic growth experienced by the demand for highly skilled workers of the post-World War II economies (Baatjes et al., 2014; Olssen, Codd & O'Neil, 2004).

Human capital theory has been defined as the sum total of the development and value afforded to knowledge, attitudes and skills, chiefly in terms of economically industrious possibility. It essentially makes sense of human beings primarily as media of income production towards economic growth. Furthermore, Dale (2014) (in Hyslop-Margison & Sears, 2010, p. 3) tried to explain particularly the reductionist nature of human capital theory, by mentioning its limited sense-making awareness orientation as follows: "Education in the national interest takes the pupil as raw material to be transformed into an efficient worker by means of a vocationally dominated curriculum".

In summary, the human capital theory sense-making awareness orientation espouses the following philosophical pointers, namely 1) education is viewed as a private transaction commodity grounded in the market place as a means to economic status and access to funds; 2) the return on investment implies greater chances for further education; 3) further education is sought mainly along the trajectory of supply and demand in the name of labour market satisfaction; and 4) an increase in education eventually produces higher earnings (Baatjes et al., 2014).

Some of the limitations expressed by numerous researchers like Motala and Vally (2014), Brown et al. (2001), Baatjes et al. (2014) and others include the following weaknesses, namely a) reducing human beings to only one dimension; b) limited awareness of skills and labour; c) intensification of societal disparities; d) prevalence of under-development; e) blaming of victims; and f) the privatisation of social ills. Furthermore, as argued in this thesis, a further limitation is the exclusion of other wider concerns such as social-ecological sustainability and the common good (inclusive of human and non-human life and life support systems) (Naess & Price, 2016). Bhaskar (2016) noted that modernity has been characterised what he calls the 'anthropic fallacy', in which "the conditions and interests of being (and beings) are reduced to, or analysed exclusively in terms of those of human being(s) (p. 26).

Brown et al. (cited by Motala & Vally, 2014, p. 29) emphasised the important and broad responsibility of governments:

Globalization has made it more important to have democratic political voice that serves the 'national interest'. What is more, there is no other institution apart from the nation

state that has the power and moral authority to balance the interests of individuals and social groups.

In South Africa, the DEA by establishing an Environmental Sector Skills Plan (2010), suggested that the government too has moral responsibility for ensuring that environmental concerns are also included in such responsibilities, within a public good and longer term sustainable development framework. The following quote by Motala and Vally (2014, p. 39) emphasises the risk involved when human capital theory policy assumptions are uncritically accepted and appropriated:

Notwithstanding these encompassing criticisms, ‘human capital’ approaches remain undeterred in the public and private discourses about education. Policy makers and other powerful voices continue to rely uncritically on the formulaic propositions about how education can ‘solve’ the multiplicity of social and historical challenges facing developed and developing societies, ignoring these and other analytical perspectives in which similarly sceptical views about the economically determinist role of education and training in society is espoused.

In framing the original study informing the Biodiversity Human Capital Development Strategy for South Africa (one of the set of green skills studies undertaken in 2010), Vass, Roodt, Wildschut, Bantwini and Reddy (2009) from the HSRC stated that the concept of human capital and human capital management may not be appropriate for the biodiversity sector, especially in a manner that is “geared towards greater profitability and productivity, accompanied by sophisticated accounting tools”. This is because the sector (i.e. the biodiversity/environmental sector) is predominantly a public sector and NGO environment. Concluding a 16-page analysis of the concept of human capital in and for the biodiversity/environmental sector, in a South African context, Vass et al. (2009) concluded:

... the usage of the term “human capital” is mostly in terms of form rather than the substance of HCT. While there are useful aspects to HCT, its substantive relevance to the South African context is questionable, given the disconnect between education and economic growth, the lack of capacity to measure productivity gains (through HR at an organisational level) and the highly controversial normative meanings for both natural and human capital. HCT in its totality may not be applicable to the current SA organisational context, or the biodiversity sector in particular. Instead, terms such as “human capacity” or even “human resource development” are less controversial in their normative meanings, and may equally well refer to a long-term approach in the development of knowledge, skills and expertise among the existing and future professional and managerial workforce in the biodiversity conservation sector.

There is, of course, a wide body of international literature that is also critical of the dominant human capital development-related skills discourse. Krugman (2012) has concluded in this respect that the skills discourse is in a state of confusion despite substantial empirical evidence

exposing its inherent inadequacies. Also, the work of Collins (2013) in ‘The end of middle class work: No more escapes’ draws attention to the tragic phenomenon where society has become witness to the huge number of educated and graduated young people emerging with diminished chances of employment. Collins (2013, as cited in Balwanz & Ngcwangu, 2016, p. 36) claimed in this respect that the South African scenario confirmed, along with the “recent increases in graduate unemployment and of over-educated youth doing low-skills or semi-skilled work”. Altogether, it is apparent that education by itself is too limited in assuming sole responsibility for the creation of employment opportunities towards economic emancipation (Allais, 2012; Lloyd & Payne, 2010).

Paying attention to these generative mechanisms may become important for the NSF as a key funding mechanism, responsible for the development funding strategies based upon national policy frameworks. The role of the NSF is currently assumed to be in support of already determined policy directions. It is therefore, perhaps ironically, expected of the NSF to accept uncritically the embedded presuppositions in national policy documents and to align its funding strategy accordingly. As indicated by interview respondent 1, however, *“the role of skills development funding via the NSF is assumed as funding not only for the sake of training and informed by national policy imperatives like the green economy but also for employability”*. This expectation in itself, given the current context of economic precarity (Standing, 2014), demand-labour mismatches, and occupation-job mismatches, as well as wider challenges associated with social and economic justice (as articulated in the NEHAWU critiques of the NDP) and the ‘anthropic fallacy’, creates a need for the NSF to embrace a wider, more critical engagement with skills planning dynamics.

7.3 Implications for national green skills funding

Some of the implications for green skills funding have already been alluded to in the discussion above. Key however is the lack of a proper skills planning function on a national and organisational level. Such a function is either absent or inadequate and this constitutes serious implications for national green skills planning and funding. Bhaskar’s (1993) notion of ‘absenting’ implies the need to absent constraints, which may be an entity, structure, event, mechanism and/or experience. He further explained that change must be understood in terms of absence as a priority over presence. Therefore absences ought to be identified as ‘real’ absences. In this case, the current absence of a credible institutional mechanism for holistic and progressive skills planning emerges as crucial for proper skills planning purposes (Bhaskar,

1993). The Environmental Sector Skills Plan of South Africa (South Africa. DEA, 2010a) has also acknowledged the demand for the provision of more accurate labour market intelligence that will enable better skills planning practices. Price and Lotz-Sisitka (2016, p. 7) emphasised the importance of demonstrating sufficient systematic capacity to provide labour market intelligence information in support of greater comprehension of the demand for effective skills combinations or ‘skills mix’ across the different levels of skills. As already identified, and as noted in the National Environmental Skills Planning, response failure for whatever reason, to satisfy the demand for effective and efficient labour market intelligence into which green skills planning can be integrated, could misguide the provision of green skills needs. The following quote by Lotz-Sisitka and Ramsarup (2014, p. 1) in response to the DHET’s ‘Call for Comments on the National Scarce Skills list: Top 100 occupations demand’ (2014) illustrates the huge need for adequate green skills planning and research as follows:

Green Skills supply and demand planning in South Africa, has to date, been particularly difficult due to a lack of good data on these skills, as well as the cross sectoral nature of green skills development. Skills planning for the green economy and for managing South Africa’s natural resources is largely re-active due to these difficulties. This is despite the fact that the green skills sector is rapidly growing. In 2010 it was estimated that the Environmental Goods and Services Sector employs over 500 000 people (excluding water services) (DEA, 2010). Since then new green jobs projections are in the region of 400 000 new jobs, as shown in the South African Green Jobs report (Maia et. al., 2012). Responding to the skills needs of this cross sectoral development area in South Africa requires adequate skills planning and analysis.

Furthermore, Respondent 7 suggested the following ways to become more responsive to national green skills needs by emphasising the key role of the OFO in this regard:

The establishment of a dedicated skills planning unit becomes critical. One of the core functions of the skills planning unit is to do the skills planning research. The funding thereof is important. The identification of occupations in high demand becomes critical. The OFO becomes the central, core and the basis on which occupations are identified. The starting point is the OFO. If green occupations are not in the OFO, we won’t be able to organise funding resources.

The benefit of such a skills planning mechanism will result in better comprehension of green skills needs and requirements not only from an environmental sector perspective but also from a cross-sectoral and more integrated national perspective, but this will require critical engagement with the dominant paradigm of skills development as alluded to above. The national mechanism would obviously be informed by strategic skills planning documents and related processes like the Environmental Sector Skills Plan for South Africa (South Africa. DEA, 2010a). The NSF could also benefit from such a mechanism through informed funding allocation decision making processes relating in particularly to grant-making functions.

In the absence of an integrated skills planning mechanism within the NSF, and although the need for such a mechanism has been identified as a work in progress through the NSF Siyaphambili project, the potential usefulness of such a mechanism as it interfaces with the national skills planning mechanism and other related labour intelligence information systems is clear. This will greatly assist a better comprehension of what kind of skills combinations are needed to boost green skills awareness. As noted above, however, greater synergies are needed between the green skills planning researchers, the LMIP, and the DHET to align the work currently taking place to inform green skills planning in South Africa. This is evident in the absence of green skills information in the 2016 LMIP report, and also in the adoption of an American framework to articulate green occupations in the South African OFO (reported on in the NSDS III 2015 report) which, according to Ramsarup (2017), shows significant misalignments with the realities of green work in South Africa. Addressing this problem is crucial in the light of the forthcoming NSDS IV system which will be heavily reliant on accurate occupational descriptors for skills planning and development.

Furthermore, mechanisms on both national Department of Higher Education and Training level and the other on organisational (NSF) level could proactively assist in the emerging National Skills Development Strategy IV expectation of embracing the language of occupations. Effective green skills planning practices could ensure that learning pathways are proactively determined through to occupational destinations as noted above. I would, however, argue in favour of the National Environmental Skills Forum inputs (NESPF, 2014) into the Department of Higher Education and Training's Framework for their Annual Report, that it should go beyond the ambit of occupations and stretch into other areas covering broader community and environmental life skills. Kraak (2008b) mentioned the importance of developing and protecting skills pathways to occupational destinations. Hence, an integrated skills planning approach from national, organisational and sectoral level will cultivate a more wholesome awareness not only of the whole skills trajectory in the country but also, through environmental education and awareness programmes, vocational guidance and emerging green technological trends. The need for pro-active engagement with these trends was noted in 2010 already, via the DEA Environmental Sector Skills Plan (South Africa. DEA, 2010a).

As noted in the introduction of this chapter, engagement with the green skills sector can potentially also provide a means for the NSF and other skills system partners to engage more broadly and critically with national policy, especially when it narrows towards economic

interests only, at the expense of wider social and public good concerns. Such a dialogue is important for comprehensive skills planning in South Africa, and for addressing the mirroring problem identified above, especially also in relation to the country's commitments to sustainable development, its need to address projected climate change impacts, maximise possibilities embedded in ecological economic thinking (e.g. mobilisation of new work and occupational learning pathways in circular economic activity) and its progressive environmental policies. Respondent 14, from a green skills research perspective, commented:

The problem is the environmental sector is fragmented. There is a need for an entity to coordinate ... in all of its diversity. We need coordination and deep knowledge of biodiversity jobs. There is no dedicated entity that looks at environmental skills planning. More investment in the skills, and greater sustainability are required. We need to invest money so that we have capable people in the different environmental sectors.

7.4 Making sense of funding policy indications: From mirroring to consensual negotiation with a critical under-labouring philosophical ontology of critical realism

7.4.1 The consensual negotiation approach

I find Van Niekerk's (2009, p. 280) approach of "consensual negotiation of texts, theories, natural processes and human doings" extremely useful to move beyond the limited ambiances of the NSF's alignment-mirroring and interpretation tendencies. While following the consensual negotiation approach, I attempt to build further on some of the strong elements from these alignment-mirroring and interpretation approaches and especially also on the critical realist ontological analysis which points to the need to consider real 'generative mechanisms' or 'generative complexes' in relation to epistemological processes of constructing and consensus building. In this process, I shall provide substantive evidence from across various disciplines, and in particular from Bhaskar's (1994) notion of alethic truth, to motivate why Van Niekerk's consensual negotiation approach as a hermeneutic approach, under-laboured by critical realist generative mechanism analysis, may be better suited to dealing with the NSF's sense-making challenge regarding funding policy indications. At the heart of Van Niekerk's (2009, p. 280) approach is the following: "The whole process of the simultaneity of discovering through constructing and co-constructing through discovering lies at the heart of the consensual negotiation approach".

Van Niekerk (2009) built further on the abovementioned notion of the fusion of discovery and construction emanating from the work of Immanuel Kant (d.1804). For example, Van Niekerk (2009, p. 280) stated that his approach draws from the Kantian notion that "discovering without

constructing is blind while constructing without discovering is empty in the sciences”. Hence the consensual negotiation as hermeneutic strategy and approach emerges as an alternative way of making sense of funding policy indications because of its inherent integrated and differential predisposition.

Before discussing this further, I wish to note that Kantianism has been critiqued by critical realists for ‘tying epistemology to ontology’ (i.e. for conflationism) and Bhaskar (2016, p. 27) recommended that “we must be able to (and regularly do) detach the ontological conclusion of some epistemic investigation from the epistemic investigation itself”. In the context of this discussion, this means that we can detach the epistemic process of constructing and discovering as sense-making process, from ontological generative mechanisms such as the absence of adequate skills planning systems at a macro level, or lack of criticality in relation to policy, or lack of adequate democratic relations, or the social-ecological conditions and power dynamics of society which may, as in the case of the current sense-making process of the NSF, also influence the process of constructing and discovering as recommended by Van Niekerk (2009) as an alternative to reproductive and more narrowly constituted mirroring sense-making processes, which I have identified as affecting the existent NSF system of skills planning.

As a sense-making scheme, this approach starts with “consensible co-positing, to consensible compromise design, to consensible percolating or fusing of clues, cues and hues” (Van Niekerk, 2009, p. 291). Van Niekerk (2009) and Nigrini (2006) argued for negotiation through consensibility of texts, theories and in this case, policy embedded with funding indications. The following statement captures the consensual negotiation approach:

Please be excellent by being an irreplaceable unique consensible negotiatory human being who percolates (= brews, drips, penetrates, seeps, sifts, strains, trickles, transfuses and transforms) and fuses (= blends, mixes, folds, merges, joins and coalesces) clues, cues and hues in your life world from the consensible compromised design of the standardised rules of the person or group. (Van Niekerk, 2009, p. 291)

The different faces of reality, for example, the physical organic environment, cultures, sciences, industries, governments and social institutions, constitute a complex matrix of negotiation between human beings. The process of negotiation as an engagement of interchange and exchange with the possibility of transformation is ongoing and unfolds on the level of awareness. In a similar vein, Gramsci (1972 in Collier, 1994, p. 17), challenging response patterns that surrender independent uniqueness towards a more reflexive and critical sense-making approach of reality, contributed as follows:

Is it better to ‘think’ without critical awareness, in a disjointed and episodic way? Is it better to take part in a conception of the world mechanically imposed by the external environment, i.e., by one of the many groups in which everyone is automatically involved from the moment of entry into the conscious world... Or is it better to work out one’s own conception of the world (and thereby) choose one’s sphere of activity, be one’s own guide, refusing to accept passively and supinely from the outside the moulding of one’s personality.

The following quote by Nigrini (2006, p. 264) emphasises the importance and relevance of a consensual negotiation approach as a sense-making mechanism which offers transformative potential in any ambience of reality:

No person, culture, language, religion, society, community, science or philosophy changes, develops, grows and increases or decreases its openness towards others without conscious interchange, exchange and appropriation or rejection or compromise or mixing of their skills and tools. The shape and the size of a person’s cultural and scientific universe and accumulation of skills and tools, codes and modes, and science and knowledge from other persons depend on the levels of interchange, exchange and appropriation (or rejection, compromise, mixing or fusing) of the processes in which they participate.

The work of the Danish physicist Niels Bohr (1934; 1962) provides further insight into the process of how a phenomenon is constituted on the basis of experience. Bohr’s (1962) work has been coined the ‘Complementarity Principle’, which tends to correlate comprehensively with the work of Werner Heisenberg’s (1927) ‘Uncertainty Principle’. The essence of the principles of negotiation like interchange, exchange and appropriation is evident in both Bohr and Heisenberg’s sense-making awareness of complementarity and uncertainty. The following extract provides a glimpse of the work of Bohr (1962), expanding on the notion of ‘complementarity’, which is also a key feature of the ICA model of policy (Feiock, 2013), as discussed in Chapter 6 via the diverse event mechanisms that can further such complementarity:

In quantum mechanics, however, evidence about atomic objects obtained by different experimental arrangements exhibits a novel kind of complementary relationship. Indeed, it must be recognized that such evidence which appears contradictory when combination into a single picture is attempted, exhausts all conceivable knowledge about the object. Far from restricting our efforts to put questions to nature in the form of experiments, the notion of complementarity simply characterizes the answers we can receive by such inquiry, whenever the interaction between the measuring instruments and the objects form an integral part of the phenomena. (Bohr, 1963, p. 4)

Further, the anthropologist, Clifford Geertz (1973, p. 452), through his notion of culture as a reflexive engagement, contended that an observer is integral to observation: “The culture of a

people is an ensemble of texts, themselves ensembles, which the anthropologist strains to read over the shoulders of those to whom they properly belong”.

In emphasising a construction and discovery form of epistemology for skills planning and engagement for the NSF, under-laboured by critical realist ontology, I also draw on Vandenberghe (2014), who claimed that critical realists have been focusing too much on structure at the expense of culture and hermeneutics. While remaining true to the essential principles and ontological tenets of critical realism, he redirected attention to language and thus forms of social interaction as a causal mechanism of sense-making awareness. He noted that there was a danger of underestimating language as a powerful mechanism of causality, explaining the impact of Marxism and the related fear of reducing reality to language at the expense of other sense-making qualities beyond the language itself, like the awareness field of experience. He drew upon the work of Gadamer by claiming that language has the power to offer glimpses of the world beyond itself. The world can be revealed through language: “it can be experienced as an open totality, but it cannot be scientifically objectified as such without loss”. Therefore, Vandenberghe (2014, p. 2) made the following claim: “One gets access to it through participation, not through objectification”.

Importantly, Bhaskar (1993) presented his notion of dialectic which introduces the alethic truth into critical realism. Alethic truth is understood to be deep truth that manifests ontologically as contrasting to truth that manifests as schemes. Vandenberghe (2014) claimed that Heidegger’s notion of *Aletheia* re-emerges in Bhaskar’s (2002) work on the ultimate philosophy of meta-reality through his concept of ‘cosmic envelope’, offering the possibility of accessing the unity of being through reflexive meditation and language.

Furthermore, Vandenberghe (2014) illustrated how the sense-making awareness field of hermeneutics differs and complements other sense-making approaches like structuralism and phenomenology. For example, while structuralism analyses language from the external perspective of the observer, hermeneutics assumes that language is a symbol that requires participation in order to be effectively comprehended. Note Vandenberghe’s (2014, p. 3) distinction between phenomenology and hermeneutics as he tried to point to the importance of an ongoing conversation between critical realism, pragmatism, hermeneutics and phenomenology:

If phenomenology adopts the perspective of the participant of the first person singular, hermeneutics deepens and enlarges this perspective by replacing it into the

encompassing framework of symbolic meanings that is common to all the subjects who share a common language (by extension, to everyone who speaks a language). With its insistence on ontology, understood as the invisible, but real totality of symbols, signs and meanings that constitute the world for us, humans as a meaningful one, hermeneutics is compatible with critical realism.

I suggest therefore that Van Niekerk's (2009) description of the consensual negotiation approach, under-laboured by an understanding of generative mechanisms or complexes that operate at the level of the real, shaping experience and understanding and including language as an important interactive generative mechanism, systematically offers a better alternative in making sense of strategic funding policy indications towards optimal national green skills planning and funding purposes.

To substantiate the abovementioned assumption, I make reference to the following pointers to illustrate how Van Niekerk's (2009) consensual negotiation approach functions with special reference to the NSF's sense making in relation to funding policy articulation.

- a) Making sense of funding policy indications is an engagement involving parties. In the context of the NSF, making sense of strategic policy documents and trying to make sense of the embedded implications for the fund, means that the NSF engages with national policy documents as a negotiation party, following Van Niekerk's conceptualisation of the "consensible negotiatory human being who percolates". (Van Niekerk, 2009, p. 291)
- b) These parties are engaged in the process of negotiation. Through the process of consensual negotiation both (policy and funding organisation) value each other. The objective is to negotiate towards a compromise or 'co-promise' design during the process of negotiation which translates into percolation and fusion of 'clues, cues, and hues'. The phrase "consensible compromised design of the standardised rules of the person or group" (Van Niekerk, 2009, p. 291), which may include the negotiated contracting processes outlined in Chapter 6, is noteworthy.
- c) Parties enter the negotiation engagement as equals and yet unique. The one is not subservient to the other but meets on equal negotiatory footing. This kind of engagement implies an upfront recognition that the sense-making value embedded in the text, for example, the strategic policy assumptions pertaining to a particular skills discourse, encounters the sense-making value brought to the negotiation table by the NSF as a funding organisation; the fund has institutional memory, for example, that could be of tremendous

value for the negotiation engagement. Van Niekerk's words: "irreplaceably unique" (2009, p. 291) are also noteworthy. This allows for the divergence and convergence models of green skills funding which I alluded to in Chapter 3.

- d) Due to the dynamic nature thereof, the engagement is an open process, offering opportunities and possibilities for transformative praxis. Note the words: 'transfuses' and 'transforms' in the conceptualisation. Certain aspects of the compromised designs could be rejected, accepted or refined in the process (Van Niekerk, 2009, p. 291). The alignment-mirroring practice does not really provide options to challenge the prevailing status quo of policy discourse because policy directions are uncritically accepted as policy directives. Again, in this process it would also require ongoing engagement with the generative mechanisms and not merely assume that because there is co-engagement, the problem of uncritical allegiance to policy ideology will be dealt with. There is a need to reflexively maintain the 'detachment' that Bhaskar (2010) referred to between ontology and epistemology.

The following quote by respondent 8 implies the need for courage in the face of unpopularity in pursuit of a consensual negotiation approach namely:

Propagating for a more focused/strategic approach to grant-making is not contradicting the notion that our funding must serve the broader South African community (as some stakeholders will argue). We will have to make difficult choices/unpopular decisions in pursuing an objective of facilitating better impact/return on investment of scarce resources.

7.4.2 Dimensions of the consensual negotiation approach

According to Van Niekerk (2009, p. 291), the consensual negotiation approach has four dimensions. The first dimension relates to the "co-positing of sense making patterns about an issue corresponding between negotiator and text". This dimension requires the NSF as the negotiator to place the fund's sense-making orientation next to or in combination with the sense-making embodied in the strategic policy, for example, the National Development Plan or the green skills-related policies and strategic priorities.

The second dimension relates to the "interactive and interchanging consensibility" between the sense-making orientation of the NSF as negotiator and that of the policy text relating to an issue at stake, for example, the funding of green skills. The strategic policy does not have all the

answers to the issue at stake but the NSF also has an input to make and rightfully should engage policy texts relating to funding indications through exchanging and co-positing its acquired sense making experience and knowledge (Van Niekerk, 2009, p. 291).

The third dimension signals the emerging design that was reached through compromise between negotiator and the policy text. But this is only possible after ‘mutual exchanging’ and negotiatory treatment (Van Niekerk, 2009, p. 292). With critical realist under-labouring, this would include taking careful account of the underlying generative mechanisms, allowing for immanent critique of discourses and practices at the level of the empirical.

The last dimension concerns the “ethical or value basis of the compromised design” that could be reached according to the following question: how can the ‘clues, cues and hues’ of the policy text be merged somewhere in NSF’s organisational experience? This speaks to convincing elements embodied and emanating from the compromised design. The purpose of the combination or mixing becomes the new policy story under construction or a policy response in the making (Van Niekerk, 2009, p. 292). As noted in the section above, this can be constituted via a broader understanding of the possible purposes for skills development in South Africa that reach beyond the economic narrative only, but which are also inclusive of this narrative, although within a broader sustainable development, public/common good framework.

In support of Van Niekerk’s consensual negotiation approach, Balwanz and Ngcwangu (2016) acknowledged that post-school education and training institutions should play a critical role, not only in terms economic growth but also in wholesomeness and nationhood. However, these institutions must become more critical of the ‘growth first’ agenda as espoused by the National Development Plan 2030. The reason for this is that the ‘growth first’ agenda “has proven to be too limited and reductionist to effectively respond to the South Africa’s multiverse social ills” (p. 48), a point also made by Death (2014) in relation to the Green Economy discourse in South Africa as discussed in Chapter 3. Further, Balwanz and Ngcwangu (2016) contended that broader conceptualisation is needed beyond what customary policy frameworks and response patterns provide, not unlike the submission made by the NESPF to the DHET on the national skills supply and demand indicators cited above. The significance of what the Social Progress Index (2014) proposes: a) fulfilling basic human needs, and b) providing foundations for well-being, becomes apparent. This should also include wider interests emanating from students and future workers, and from a green skills perspective, non-anthropocentric interests which fall

foul of the anthropic fallacy named by Bhaskar (2010) as being characteristic of modernity and its economic structures (Naess & Price, 2016).

Balwanz and Ngcwangu (2016, p.48) stated the following supporting the importance of Van Niekerk's consensual negotiation approach:

We also contend that PSET institutions move away from a supply/demand concept and toward one focusing on co-construction and partnership. The latter conceptualization recognizes that 'skills development' and 'occupational preparation' is often best done in a social context and involving players in education, local communities, professional associations and businesses.

The above approaches present significant challenges for the current dominant discourse and practice in the NSF and associated skills development structures in South Africa, which, as critiqued by Motala (2009) and others, appear to be somewhat 'trapped' in a particular discourse and form of practice that is narrowing of skills development possibilities. However, as Bhaskar (1998b) suggested, change emerges from absence, and it is naming the absences and the generative mechanisms that shape these that provides for the possibility of change and transformative praxis within a dialectical frame and possibility. There *are* alternatives, and failure to articulate these will leave the skills system in South Africa trapped in a TINA complex.

7.4 Conclusion

As argued above, I suggest that the consensual negotiation approach can potentially add greater value to the NSF's skills planning processes. If a dedicated skills planning function is embarked upon, it will assist the NSF to proactively engage public policy development processes before national policy documents are gazetted. The current quest for a dedicated skills planning or knowledge management function as part of the NSF Siyaphambili project will assist the fund to recognise its own experience as worthwhile and optimally utilise its own resources in the context of a consensual policy negotiation approach. Such an approach also has the potential to strengthen the ICA intentionality of the post-schooling White Paper (South Africa. DHET, 2013a) and can also be more inclusive of new horizon developments in the skills system landscape such as the emergence of a unmet, fully articulated demand for green skills within the wider framework of emerging sustainable development. This would imply that the NSF will also have to draw from other skills planning intelligence systems like the Department of Higher Education and Training's skills planning unit, and skills planning initiatives undertaken by groups such as the NESPF amongst others, while considering the mainstream high priorities

of government such as those identified in key policies. A consensual negotiation approach can also facilitate this process more effectively because the Department of Higher Education and Training also enters the engagement as a partner in negotiation.

Moreover, through a process of rigorous engagement between the NSF as negotiator and other negotiation partners like national policy texts and the Department of Higher Education and Training, the emergence of reductionist assumptions, viewing education only as a tool to economic expansion and job creation, could easily be exposed and comprehensively addressed. Embedded policy assumptions that appear comprehensive but which are intrinsically limited could also quite possibly be exposed and associated risks averted. The integrated and differential nature of the consensual negotiation approach suits the catalytic role of the NSF as integral and differential in relation to the transforming leadership role of the Department of Higher Education's role in the post-school education and training system fairly well. As noted above, this approach shows potential to allow for the divergent and convergent approaches to green skills system funding as highlighted in Chapter 3 and will potentially allow the NSF to develop a deeper engagement and understanding of this new emergent skills demand system.

CHAPTER 8

‘THE REPAIRER OF THE BREACH’:

RESEARCH CONCLUSION, FINDINGS AND RECOMMENDATIONS

8.1 Introduction

In this chapter I draw to a close what has been an exciting research journey. I recall the study objectives as raised by the main study question namely: *How can an understanding of generative mechanisms inform the NSF’s grant-making responsiveness in relation to green skills?* In this chapter I summarise the main findings related to each of the sub-questions which were addressed in more detail across the thesis in a systematic manner. The chapter also addresses the last research question which is: *In what way/s can the NSF potentially expand/enhance existing responsiveness to the emergence of the green economy and associated needs for green skills development in South Africa?* (addressed across the thesis, but particularly in Chapter 7 and here via the recommendations). The research questions are:

- a) How do the emerging dynamics around concepts like the green economy and green skills influence current / existing green skills funding response patterns? (*addressed in Chapter 3*)
- b) What are the processes, dynamics and event mechanisms responsible for enabling the NSF’s current grant-making responsiveness in relation to national green skills funding? (*addressed in Chapter 4*)
- c) What are the key skills development components currently determining the NSF’s responsiveness to green skills within the post-schooling policy context? (*addressed in Chapter 5*)
- d) How can a better understanding of the NSF’s grant-making dynamics from an Institutional Collective Action (ICA) (integrated) perspective support responsiveness of the NSF’s grant management system to emerging green skills needs? (*addressed in Chapter 6*)
- e) What are the generative mechanisms influencing existing and potential responsiveness with regards to how the NSF makes sense of national policy from a green skills perspective? (*addressed in Chapter 7*)

- f) In what way/s can the NSF potentially expand/enhance existing responsiveness to the emergence of the green economy and associated needs for green skills development in South Africa? (*addressed across the thesis, but particularly in Chapters 7 and 8*)

The study embarked on a journey to investigate the role of the South African NSF in relation to green skills, attempting to enhance better integration and optimal functionality within the context of the emerging green economy and wider sustainable development of society, in response to a modernist history in which Bhaskar's (2010) anthropic fallacy has triumphed over wider and more inclusive – and less ecologically destructive – modes of being. The investigation has considered the identification of green skills funding as a skills planning and implementation challenge within the parameters of the NSF organisationally, within the post-school education and training system, the green economy and related skills discourses locally and globally.

Critical realism was used as a meta-theoretical approach which resulted in the study unfolding according to a customised critical realist theoretical framework, coined as the quadrilateral policy analysis framework (QPAF) in four research phases namely: a) a descriptive analysis (Chapters 3 and 4); b) a component analysis (Chapter 5); c) an abductive policy analysis (Chapter 6); and d) a generative mechanisms analysis (Chapter 7). The QPAF was framed and customised on the basis of the Danermark et al.'s (2002) proposed framework for critical realist research studies which was based on Bhaskar's RREIC schema. Feiock's (2013) institutional collective action framework (ICA) was used to strengthen the abductive policy analysis research phase in Chapter 6, enabling me to offer an immanent critique of the NSF as its role pertains to green skills funding and give an account of the NSF grant-making function. Critical event mechanisms have been highlighted that are core to potentially enhance its grant-making function and underlying generative mechanisms and absences have been identified which can chart a generative, transformative pathway to respond to the policy dilemmas identified, as well as the wider social-ecological problem of the anthropic fallacy characterised by narrowing trajectories.

The study claims emanating from this research enquiry process have emerged along an acute awareness orientation of the stated complexities within the ontological domain and inherent teleological expectations (see Chapter 2 section 2.2 in this regard). These limitations constantly reminded me not to oversimplify the ontological and stratified realities like the NSF and green skills but rather recognise the complexities that could possibly bring about social change or

confirm that it is not al/ways possible (Bhaskar, 1998a and 1998b). It is from this awareness temperament that the study project proposes the following findings.

8.2 Research findings Phase 1: Descriptive analysis parts A and B

Part A – Chapter 3 unfolded by locating the issue of national green skills funding within the complex dynamics of the green economy and related debates both locally and globally. The likelihood of different response modes to the phenomenon of green economy and implications for the funding of green skills, especially from the perspective of the NSF, were kept in mind.

I discovered that the phenomenon of the green economy is part of a debate that is far from over. In the final analysis it comes down to the clashing of interests, values and views which are relative, embedded and highly dependent upon people's awareness orientations (see section 3.1 of Chapter 3) at an epistemological level. Yet ontologically, there is a case to be made that human life is embedded in planetary earth systems that cannot be continually degraded, hence the emergence of discourses and practices focussing on environment, sustainability, sustainable development and most recently green economies and green skills.

I found the work of Paul Ekins (2013) extremely helpful and well balanced. His contribution assisted me to understand the green economy discourse better in the context of green awareness. For example, Ekins (2013) pointed to the reality of natural resources which are rapidly becoming depleted, which is very significant in the face of the demands of an expansion in human population numbers. Hence he does not really favour movements advocating agendas of 'no growth' and 'de growth'. I agree with Ekins that it is a pipedream to expect governments globally and locally to rapidly and radically reduce economic growth, because economic progression constitutes the purpose of public mandates within the current dominant structural frames. However, there are alternative ways of considering the problem (i.e. we are not stuck in a TINA complex), and in this, I also recognise that economics itself needs to change towards a stronger 'ecological economics' or regenerative economics frame, as argued in the thesis drawing on the insights of Naess and Price (2016), Daly (1999) and Raworth (2017). If humanity is to flourish, economic thinking needs to address Bhaskar's (2010) point about the anthropic fallacy which has emerged via modernity. The debates mentioned above are part of this broader transitioning process.

Despite the emergence of varied and often contradictory approaches, the greening of economies has become a national and international demand which opens up the need for green skills

training and the consequent funding requirements. The green skills agenda in South Africa is in its infancy and manifests in a fragmented green economy policy landscape which is in desperate need of comprehensive capacity and coordination (NESPF, 2014). In South Africa, there is recognition that green skills are not only related to the economy, but are also related to the public good and to wider social justice concerns, which changes the discourse on green skills from an 'economics only' discourse to a more expanded wholesome green skills awareness. For example, the same correlation of wholesomeness was also noted later in the thesis in the discussions by a HSRC study on the relevance of human capital discourse in the environmental sector (Vass et al., 2009). It was argued that this was an important dynamic for broadening participation and discourse with the NSF and its current approaches to skills planning.

It is in the context of public service and expectations that the NSF is making its contribution and despite the green economy discourse only emerging recently, and although the notions of green growth and green skills were not fully coined during the first National Skills Development Strategy period (2001-2005), I was able to discover that the NSF did contribute meaningfully towards green growth and green skills through various skills development projects like the INTAC project. During the National Skills Development Strategy (NSDS) I (2001-2005) and the National Skills Development Strategy (NSDS) II (2005-2010) periods, the mandate of the NSF was mainly driven by sectoral needs and interests. Hence the explanation of the NSF's contribution showing divergent response tendencies. The role of the NSF was largely determined by what transpired according to the divergent agendas and skills response options advanced by various SETAs. During this stage the NSF was also plagued by serious underspending and surplus claims which caused the fund to underperform in the face of desperate public skills needs and expectations (NSF, 2013a; NSF, 2016b).

The dawn of National Skills Development Strategy (NSDS III) (2011-2016, extended to 2018) and the White Paper on Post-School Education and Training (South Africa. DHET, 2013a) saw the emergence of convergent tendencies where the mandate of the NSF was assumed to be dictating sectoral needs and expectations. The NSF's mandate started to become more apparent on a national platform and driven by national interests and national expectations, rather than sector-based expectations. It was at this stage that the notions of green growth began to manifest themselves in a number of strategic policy documents like the National Growth Path, the National Development Plan, and the National Skills Development Strategy (NSDS) III. The

NSDS III declared the NSF a ‘national resource’. The NSF was expected to play a catalytic role across all areas of need, catalysing reluctant potential. According to the National Skills Development Strategy (NSDS) III, section 5.2.1 of paragraph 3, one of the priorities that will take precedence in the NSF will be: ‘Projects that are in alignment with skills to support the green economy’. This confirms the strategic shift towards national green skills funding interests in support of key national policy frameworks like New Growth Path and the Industrial Policy Action Plan and also the NSF’s significant investment in green skills via the SARETEC investment to support renewable energy skills development.

Both divergent and convergent response patterns emerged during the course of the descriptive analysis and could be of value. The emergence of a more dialectical funding relationship became noticeable, especially since the publication of the White Paper for Post-School Education and Training in 2013 which portrayed both divergent and convergent green skills funding response patterns and tendencies, appearing in creative tension upon a continuum platform. The dialectical funding response option is starting to emerge where the NSF is expected to play not only a catalytic role but an integrated and differential part in the post-school education and training context.

Part B, Chapter 4 described the NSF as a key funding mechanism within the post-school education and training arena by means of a review of the a) genesis stage of the fund; b) its legislative, governance and strategic mandates; c) major studies undertaken; and d) implications for national green skills funding.

During the genesis period of TUP fund, which acted as a kind of curtain raiser for the NSF, the responsibility for training unemployed people was divergently driven from grass roots level up through sectoral interests and expectations (South Africa. DoL, 1996; 1997). Project contracting was well researched, which led to the NSF embracing performance contracting approaches, with embedded quality assurance controls (South Africa. DoL, 1996). Although this approach continued way beyond the actual birth of the NSF and later became highly problematic in terms of the lack of centralised governance control measures, the strength it offers for national green skills funding is embodied in the potential of strong stakeholder relations, with the Eastern Cape Green Skills Forum offering one such possible platform where funding partnerships can be bolstered between the NSF and other green skills stakeholders.

Another observation pertains to a number of well-documented organisational studies undertaken to strengthen the capacity and strategic functioning of the NSF. All the studies agreed that the most suitable form for the NSF would be a Schedule 3A Public Entity. This later materialised but the listing exercise left the NSF in a hybrid organisational flux, whereby it is only obligated to account as a public entity in terms of due public entity accrual standards, but inherently it is still continuing as a funding programme within the DHET. How this matter will affect the fund going forward remains an open question. On the positive side, the lack of organisational capacity in the NSF which all the studies have confirmed is addressed through the Ernst and Young Siyaphamibili project. In terms of visibility, the envisaged roll-out of regional offices, establishing the interest of the NSF across the provinces of South Africa, could effectively stimulate green skills funding interest and expectations from prospective green skills training providers.

8.3 Research findings Phase 2: Generative component analysis

In Chapter 5, the following components were identified and analysed as key influencing factors related to the role of the NSF in responding to green skills, in the drive towards better integration and optimal effectiveness: a) the mother body, the DHET, as the custodian and leader of the post-school education and training in South Africa; b) the NSA, the designated authority of skills in the country; and c) the skills levy system as the matrix within which the NSF is located.

The purpose and role of the NSF is directly connected to the purpose and role of the DHET. The expectations of the DHET weigh the heaviest in comparison to other key stakeholders. At the heart of DHET's mandate, of which the NSF is emerging as a vital funding mechanism, is ministerial commitment towards the presidential office to assume responsibility for Outcome 5 of government's twelve performance outcomes, namely: "A skilled and capable workforce to support an inclusive growth path". It is assumed that NSDS (III) has been strategically designed to enhance the skills development pipeline through optimal effectiveness, efficiency and becoming the implementation framework towards the realisation of Outcome 5. Also, the Director-General of DHET is by law the accounting authority of the fund. Closely linked to the DHET domain and NSF funding activities, the NSA assumes full delegated authority to endorse and recommend the funding strategy and list of funding priorities of the NSF.

The skills levy system is the main structure within which the NSF functions and from where its funding is sourced. The reallocation of surplus uncommitted funds from SETAs being

returned to the NSF coffers is an indication of the level of trust, responsibility and expectation the skills levy has placed upon the NSF. This provision was put in place with the promulgation of the new SETA grant regulations in the Government Gazette 35940, Notice No. 990.

All indications are that this regulation will imply that the income of the NSF will significantly increase, freeing much-needed funds for other investment purposes and/or other funding options (NSF, 2015a). With the commencement of the reallocation and use of the uncommitted funds from SETAs, by 1 October each year, it is expected that the additional income flowing into the coffers of SETAs will decrease (NSF, 2015a). The Skills Development Act, Act 97 of 1998 as amended, makes provision for the inflow of income sources apart from the dynamic provision of skills levies. The fact that the NSF may also receive donor funding from elsewhere opens up interesting possibilities for broader skills partnerships. In the past, when the NSF was plagued with underspending and having uncommitted funds in the face of desperate skills needs in the country at large, this option was not really viable. However, with the NSF moving to the other side of the pendulum and now having its funding reserves depleted because of sectoral over-commitments, especially given the current shortages of funds to cover TVET and Higher Education basic and bursary funding, the donor funding option holds potential possibilities for new green skills endeavours (NSF, 2015a; NSF, 2016b).

8.4 Research findings Phase 3: Abductive policy analysis

This research phase was covered in Chapter 6, with the re-description of the NSF's grant-making function as a key feature in green skills delivery. Feiock's (2013) ICA framework was utilised to explain the dimensions of the NSF's funding dilemma, for example a) horizontally: conflict of stakeholder interest; b) vertically: conflict of competitive interest; c) functionally: conflict of policy interest; and d) identity: conflict of self-interest in terms of green skills funding. A number of ICA event mechanisms were analysed with the aim of selecting and motivating the best possible event mechanism for effectively responding to the NSF's funding dilemma, covering the whole scope thereof.

To respond effectively to the horizontal dimension of the funding dilemma – conflict of stakeholder interest – *contracting* emerged as the most suitable *ICA event mechanism*. This event mechanism is critical as part of the second grant-making phase, namely Grant Initiation, with special reference to the final Stage 5, that of grant initiation. The goal of all five stages of the Grant Initiation phase (Phase 2) alludes to the ability to solicit and contract preferred providers. This is a vital component to ensure that the NSF delivers on its strategic mandate.

NSF funding is not allowed without a formal contractual framework governing the delivery of skills interventions. Partnership as an event mechanism could also benefit the resolution of this feature of the funding dilemma.

The *mandated agreement ICA event mechanism* seemed to be the most capable of dealing with the vertical dilemma of conflict of competitive interest. To neutralise the conflict of competitive interest between DHET's NSF and the DEA's Green Fund, a mandated agreement can ensure a collaborative response in providing green skills needs. The chances of increased effectiveness among various key stakeholders could potentially become stronger in pursuit of similar green growth policy aims and also toward the expansion of the green economy and sustainable development in South Africa. The event mechanism of partnership could also assist mandated agreements toward the delivery of funding green skills.

In respect of the conflict of policy interest due to the fragmented and uncoordinated nature of the green skills policy landscape currently, I have found that the *multiplex-self organising ICA event mechanism* has the best potential to integrate and coordinate green skills interests through the establishment of interdepartmental green skills forums and provincial green skills forums as championed by the Eastern Cape Green Skills Forum, which the NSDS implementation report has indicated as a possible best case model for the sake of national interest. Partnership as an event mechanism could also be of great help to consolidate fragmented and uncoordinated interest. In fact, the partnership event mechanism emerged as the most versatile ICA event mechanism, offering the most responsiveness across all facets of the funding dilemma, including the identity feature, namely conflict of self-interest.

8.5 Research findings Phase 4: Generative mechanism analysis

Chapter 7 offered a comprehensive and in-depth analysis of the generative mechanisms influencing existing and potential responsiveness with regard to how the NSF makes sense of national policy from a national green skills perspective. This question necessitated an investigation into the generative mechanisms responsible for the causality in relation to skills development dynamics espoused by key policy documents like the NSDS III, the National Development Plan and the White Paper for Post-School Education and Training. Hence, the notion that skills automatically determine economic growth and expansion was critically interrogated. In order to search for the underlying generative mechanisms, this task required working with Bhaskar's (2010) proposed metacritique model. The model was customised according to six framework questions, namely a) what is inadequate? b) why is it inadequate?

c) how was it generated? d) what are the causes for the inadequacy? e) what are the identified mechanisms responsible for the inadequacy? and f) what are the implications for national green skills funding?

I was able to confirm that the way the NSF is making sense of funding policy indications is too limited because it relies mainly on an alignment approach that is essentially a form of mirroring practice. The need for a more consensual negotiation approach in making sense of strategic policy from a skills funding perspective was therefore proposed in this chapter, with due regard for the difficulties of conflating epistemology and ontology in consensual negotiation. An argument was presented to engage reflexively with underlying mechanisms of an inadequate national skills intelligence systems, an inadequate participation and democratic process and an uncritical adoption of policy ideology, which were identified as three generative mechanisms that have shaped current praxis in the NSF. Without paying attention to these via ‘detachment’ from the process of consensual negotiations, the current situation may well be reductive and reproductive of the status quo (NSF, 2015a; Van Niekerk, 2009; Benjamin, 1936).

The analysis discusses how a skills planning policy alignment approach, driven by the urge to comply intentionally or unintentionally, embraces firstly the underlying assumption of strategic funding policy indications that skills instrumentally determine economic expansion through employment creation. Secondly, the substratum of the skills discourse is driven by human capital theory discourse which further is an extension of neoclassical economics and neoliberal capitalism where skills development funding is perceived to be an investment mainly towards the assurance of employability and productivity. Consequently, skills development is appropriated as an instrument of economic use and benefit at the cost of other important values like family and social belonging and responsibility and ecological sustainability. Both human capital and neoliberal discourses feed predominantly into capitalistic structural deficiencies which are inherently responsible for challenges like precarity of employment, unemployment and not necessarily a lack of skills (NSF, 2011; NSF, 2013a).

These substratum assumptions are seemingly dominant as espoused and entrenched in key policy documents perceived to guide funding strategies of organisations like the NSF. When it comes to making sense of funding policy indicators, this research phase illustrated the importance of not relying only on an alignment approach which is not only mechanistic but also limited due its underlying tendencies of mirrorisation and interpretationism. It proposed a more responsive, negotiated via consensus-building approach, under-laboured by critical

realist reflexivity in relation to ontological dynamics and generative mechanisms, as being potentially more productive, critical and responsive to the need for green skills funding being included within the national system of skills planning and development (Van Niekerk, 2009; Nigrini, 2006; Collier, 1994).

8.6 Consolidated recommendations profile

Based upon the aforementioned findings, the following main recommendation is made to strengthen the NSF's responsiveness to the emerging green skills landscape:

Key Recommendation: The NSF cannot fulfil its organisational mandate without building strategic partnerships with key policy components like the DHET, NSA and the broader skills levy system. Embracing the interests of these organisations is critical for the future of the NSF; it cannot, however, be at the expense of the self-interest of the NSF as an organisation resulting, for example, in uncritical skills planning processes. Feiock's (2013) Institutional Collective Framework (ICA) has emerged as a distinctive example of a response approach option. An ICA response could assist the NSF to enhance stakeholder relations and resolve funding dilemmas currently being faced by the fund. Besides the key event mechanisms such as contracting that are crucial for the NSF grant-making function, the partnership event mechanism emerged as the most versatile event mechanism within the grant-making function that could possibly catalyse the best ICA response outcome envisaged to assist national green skills funding. The NSF should consider building strategic partnerships with the Green Fund, and other key green skills role players like the DEA and SANBI, the National Implementing Entity (NIE) and its Adaptation Fund as custodians of the Global Environmental Facility (GEF) climate change adaptation funds. Partnership as an event mechanism will inevitably enhance the NSF's contribution to green skills development in the country and minimise conflict of policy interest, stakeholder interest and conflict of competitive interest.

Recommendations for further research: In terms of recommendations for further research, it suggested that a comparative analysis between the NSF and another world class leading funding agency (like the Canadian International Development Agency (CIDA) or the Irish National Training Fund) be considered. This could potentially enhance the fund's policy making process and assist in the development of more appropriate institutional arrangements towards optimal funding responsiveness. Where possible, there is also need for more

comparative research on green skills funding models in developing countries such as Brazil, Kenya and India, where these are emerging.

In the light of the NSF's current contribution to green skills in the country, an impact evaluation study on the return on green skills investment could be an interesting research endeavour, especially if this can be done in relation to the broader framing of green skills interests as proposed by the NESPF in its recommendations on a broader range of indicators for skills demand and supply identification to the DHET. In respect of the prospect of an impact evaluation study, the following words of Respondent 8 are relevant: *"The NSF should put more emphasis on measuring outcomes/impact, although this is not a simple task. Among other things, proving causality (between funders' intervention and outcome could prove to be difficult"*. Also relevant is a wider framing of indicators for green skills development as noted in the citation from the NESPF (2014) which argued that "Society needs better protection of natural resources for social development, well-being, climate resilient development and the public good. These are not always linked to economic development, and a wider framework for indicators and analysis is therefore needed".

8.7 Conclusion

Based upon the aforementioned findings and recommendations, for the NSF to respond effectively to green skills funding requirements, a consensual negotiation skills planning mechanism from an institutional collective action response platform becomes critical in the pursuit of its legislative, organisational and public mandate.

In this paragraph, I summarise what I consider to be the contribution of this study to new knowledge. At the start of the study, there was no available analysis of how the emerging green economy and green skills planning system in South Africa could interface with a critical skills system element such as the National Skills Fund. Much was known about the relevant policy, the emergence of green jobs projections, the demand for better skills planning, but how to align this with the work of the NSF was unknown. To develop this contribution to new knowledge, I have had to engage in a careful description and critical analysis of the green skills landscape and its emergence in relation to the NSF and also in a critical realist analysis of the NSF and its functioning as it operates internally (i.e. via immanent critique), in relation to its main policy and institutional structures, its history, and emerging new policy imperatives, as well as how it relates to the green economy, wider sustainable development interests and humankind's relationship with the planet. I have concluded that there are various event mechanisms that can

be mobilised to ensure a more convergent and dialectic approach to green skills funding in South Africa via instruments and institutions such as the NSF. I have also concluded that the NSF itself could engage with the emergence of new skills pathways such as that of green skills via a new model of internal operation involving consensual negotiation underpinned by reflexive engagement with underlying ontological pointers and generative mechanisms, rather than on an empirical form of policy-mirroring only. I have proposed that this could potentially also be transformative more broadly of skills discourses as they are currently manifest in South Africa. The proposals made via this study remain open-ended and serve as recommendations for the green skills community as well as for the NSF and the DHET to obtain greater synergies and alignment, as well as responsible stewardship of South Africa's environment within a paradigm that is inclusive of responding to the critical unemployment, poverty reduction, and sustainable development demands for current and future generations, all of which pose challenges for the country.

In closing, the research journey commenced with Ackermann (2003, p. 65) and Sporre (2015) alerting me to the enormity of the responsibility of building and transforming a society: "I write to you..." of the stark South African reality. In many ways, this overwhelming reality along with the many challenges implicit in this research project might cause one to become hesitant to answer the call of this responsibility to stewardship, not only in terms of national green skills funding, but also to embrace a more wholesome awareness of the development of people and our priceless physical organic environment. In pursuit thereof, Alan Boesak (2009), a well-known religious figure in South Africa who was also an anti-apartheid activist, courageously encouraged us with great hope amidst the daunting challenges facing South Africans today. In some ways the citation below of Boesak (2009) accords also with the critical realist approach used to frame this study, as Bhaskar (1998a) has noted that it is through understanding generative mechanisms and emergence in open systems and through identifying absences that we are able to engage with change that is also critically constituted and therefore also emancipatory.

Final epigraph:

I have, in this thesis, endeavoured to adhere to the tenets of such a scholarly project of hope. Boesak (2009, p. 405) raised the banner of hope as follows:

Too many of us are despairing, mourning the loss of what we thought we had, bemoaning the state of our democracy, blaming others and forgetting our own responsibility. Let us be done with all that now... Yesterday is behind the mist of night. Today is the gift of a new arising. Tomorrow is the dawn of our awakening. The coming day belongs to us!

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Appendix A – List of key documents analysed

NSF organisational	Grant-making	Legislative and policy	Green economy and skills	Theoretical/methodology frameworks
NSF Strategic Grant Allocation Funding Framework (NSF, 2013c)	Results-based grant-making: An approach to decision making for foundations and other funders (Friedman, 2000)	National Skills Development Strategies I 2001-2005, II 2005-2010, & III 2011-2016 as extended to 2018	Per Capita Report: Australian Green Skills Research Project (2010)	Institutional Collective Action Framework (Feiock, 2013)
National Skills Fund Annual Financial Statements 2012/13, 2013/14 and 2014/15	Mapping Change, Grantcraft, 2006	Skills Development Act, Act 97 of 1998a	The Green Economy in South Africa: Global Discourses and Local Politics (2014)	Explaining Society Critical Realism in the Social Sciences (Danermark et al., 2002)
NSF Strategic and Operational Plans from 2000- 2016	Guideline on Proposal Evaluation and Selection Procedures, European Commission (2006)	White Paper for Post- School Education and Training (DHET, 2013)	International Labour Organisation Skills for Green Jobs in South Africa(2010), Global Review (2011)	How to succeed in your Master's and Doctoral Studies (Mouton, 2001).
NSF Annual Report: portfolio presentation (NSF, 2013)	Fulfilling, the philanthropic contract: Mutual benefit for the public good (Broadbent, 2006)	Human Resource Development Strategy South Africa II (2010-2013)	Skills for employment policy brief: greening the global economy (2011)	Advances in mixed methods research, (Bergman, 2008)
NSF Expenditure Performance Review report (NSF, 2014a)	Funding for impact: How to design strategic grantmaking programs (Kessler & Snowdon, 2005)	National Development Plan 2014	Organisation for Economic Co-operation and Development: Reviews of vocational education and training (2014)	Case Study Research (Yin, 1994)
Department of Labour, NSF Business case (NSF, 2007)	Industry Research (Gartner, 2008)	National Growth Path (NGP) (RSA, 2010)	Crisis system, a critical realist... (Naess & Price, 2016)	Interdisciplinarity and Climate Change (Bhaskar, 2010)

SF Deloitte Management Report (NSF, 2009)	Mackinnon and Arnott (2006) Grant mapping change: Using theory of change to guide planning and evaluation	Skills Development Levies Act, Act 9 of 1999	The Dangerous Path of Nature Commoditization (Wilson, 2013)	Research Knowledge base, Trochim, 2006
NSF organisational	Grant-making	Legislative and policy	Green economy and skills	Theoretical/methodology frameworks
NSF Business Case (Ernst & Young, 2016a)	The Grantmaking Tango: Issues for funders (Unwin, 2004)	Public Finance Management Act (PFMA), Act 29 of 1999 as amended and Regulations	The environmentalism of the poor: A study of ecological conflicts and valuation (Martínez-Alier, 2002).	Cohen, L., Manion, L., & Morrison, K. (2007). Research methods in education. London: Routledge.
The NSF as a mechanism to address skills development of unemployed (2012)	The Constitution of the Republic of South Africa, 1996	Public Service Act, Act 103 of 1994	Green economy literature (Consilience: The Journal of Sustainable Development) Wilson, 2013	George, A. L., and A. Bennett. 2005. Case Studies and Theory Development in the Social Sciences.
NSF Grant Disbursement Framework (2016)	Valuating our potential: Investing in skills to build civil society (Ball & Unwin, 2004)	Medium Term Strategic Framework, 2009/10 to 2014/15	National Framework for Sustainable Development DEA, 2008)	Sayer, A. 1992. Method in Social Science. A Realist Approach. New York: Routledge.
Integrated nature-based tourism and conservation management, NSF project impact report (2005)	Look before you leap, Best Practice Grant-making Quarterly Edition (Arrick & Kahn, 2003)	Environmental Sector Skills Plan for South Africa (DEA, 2010)	NSF Nature Conservation Project Impact (INTAC) Study Report (2007)	Collier, A. 1998. The power of negative thinking in critical realism: Essential readings
NSF Department of Labour Director General Submissions, DoL, 1996, 1997, 1998	Experienced Grant Makers at Work (Brousseau, 2004)	Human Capital Development Strategy (DEA, 2010)	Green Economy: the what, why and how (Ekins, 2013)	Archer, M., Bhaskar, R., Collier, A., Lawson, T., & Norrie, A. (Eds) Critical Realism: Essential Readings,

Appendix B: Interview Guideline

Appendix B	Date:	
Interview Guideline		
	Time:	
Research project: The National Skills Fund and Green Skills	Location:	
	Interviewer:	
	Interviewee:	
Notes to interviewee:		
Thank you for your participation. I believe your input will be valuable to this research and in helping grow our professional practice.		
Confidentiality of responses is guaranteed		
Approximate length of interview: 30 minutes, five major areas.		
Purpose of research:		
<i>What is the role of the NSF in enabling better integration and optimal effectiveness in relation to green skills?</i>		

- 1) According to NSF documentary sources and other green skills sources, how are green skills theorised and conceptualised in terms of historiography?
- 2) Within the NSF's /skills levy grant management system, how does the NSF initiate skills planning and implementation in terms of green skills, or not?
- 3) In what way does the NSF/skills levy grant management system reflect a more integrated approach according to the policy mandate of the post-schooling white paper, or not?
- 4) What mechanisms influence the role and potential of the NSF/skills levy system to respond to the green skills needs in the country?
- 5) In what way/s can the NSF/skills potentially become more responsive to the emergence of the green economy in South Africa?

1.	Take me back through the history in your involvement in the NSF/DHET/DOL or any green skills funding activities.
According to NSF documentary sources and other green skills sources, how are green skills theorised and conceptualised in terms of historiography?	
What types of experience do you have in green skills funding or sustainable projects?	
What is your background in working with the NSF/skills funding system and/or green skills?	
What is an area of strength or expertise you might have in terms green skills funding?	
Response from Interviewee:	
Reflection by Interviewer	

2. Within the NSF's/ skills levy grant management system, how does the NSF initiate skills planning and implementation in terms of green skills, or not?

[illegible]

Response from Interviewee:

[illegible]

Reflection by Interviewer

3. In what way does the NSF/skills grant management system reflect a more integrated approach according to the policy mandate of the post-schooling white paper, or not?

Response from Interviewee:

Reflection by Interviewer

4. What mechanisms influence the role and potential of the NSF/ skills levy system to respond to the green skills needs in the country?
Response from Interviewee:
Reflection by Interviewer

5. In what way/s can the NSF/skills levy system potentially become more responsive to the emergence of the green economy in South Africa?
Response from Interviewee:
Reflection by Interviewer
Closure
Thank you to interviewee
Reassure confidentiality
Ask permission to follow up

Appendix C: List 14 Government Outcomes

The outcomes for 2014 to 2019 are published as annexures to the Medium Term Strategic Framework:

- Outcome 1: Improved quality of basic education.
- Outcome 2: A long and healthy life for all South Africans.
- Outcome 3: All people in South Africa are and feel safe.
- Outcome 4: Decent employment through inclusive economic growth.
- Outcome 5: A skilled and capable workforce to support an inclusive growth path.
- Outcome 6: An efficient, competitive and responsive economic infrastructure network.
- Outcome 7: Vibrant, equitable and sustainable rural communities with food security for all.
- Outcome 8: Sustainable human settlements and improved quality of household life.
- Outcome 9: A responsive, accountable, effective and efficient local government system.
- Outcome 10: Environmental assets and natural resources that are well protected and continually enhanced.
- Outcome 11: Create a better South Africa and contribute to a better and safer Africa and World.
- Outcome 12: An efficient, effective and development oriented public service and an empowered, fair and inclusive citizenship.
- Outcome 13: Social Protection
- Outcome 14: Nation Building

Sourced: South African Online Website: <http://www.gov.za/issues/outcomes-approach>

Appendix D List of Sector Education and Training Authorities (SETAs)

1. AGRISETA

Agriculture Sector Education and Training Authority

Address: 529 Belvedere Street, Arcadia, Pretoria

Postal Address: P.O. Box 26024, Arcadia, 0007

Tel: 012 301 5628 / 012 301 5651/05

Fax: 086 556 5588

Website: www.agriseta.co.za

2. BANKSETA

Banking Sector Education and Training Authority

Address: 94 Bekker Road, Block 22, Thornhill Office Park, Vorna Valley, 1685

Postal Address: P.O. Box 11678, Vorna Valley, 1686

Tel: 011 805 9661 / 011 564 5319

Fax: 011 805 8348

Website: www.bankseta.org.za

3. CATHSSETA

Culture, Arts, Tourism, Hospitality and Sport Sector Education and Training Authority

Address: 1 Newton Avenue, Killarney, Ground Floor, Johannesburg

Postal Address: P.O. Box 1329, Rivonia, 2128

Tel: 011 217 0600

Website: www.cathsseta.org.za

4. CETA

Construction Education and Training Authority

Address: 2nd Floor, Building 5, Midrand Business Park, Main Road, Midrand

Postal Address: P.O. Box 1955, Halfway House, 1685

Tel: 011 266 5900 / 011 2655912

Fax: 011 265 5950

Website: www.ceta.org.za

5. CHIETA

Chemical Industries Education and Training Authority

Address: 2 Clamart Road, Richmond, Johannesburg

Postal Address: P.O. Box 961, Auckland Park, 2006

Tel: 011 628 7076

Fax: 011 726 7777

Website: www.chieta.org.za

6. ETDPA

Education, Training and Development Practices

Address: 24 Johnson Road, Riverwoods Office Park, Bedfordview, Johannesburg

Postal Address: Private Bag X105, Melville, 2109

Tel: 011 372 3300 / 011 372 3302

Fax: 086 604 8934

Website: www.etdpseta.org.za

7. EWSETA

Energy and Water Sector Education and Training Authority

Address: Sunnyside Office Park, 3rd Floor Sentinel, 32 Princess of Wales Terrace, Parktown

Postal Address: P.O. Box 5983, Johannesburg, 2000

Tel: 011 274 4700

Fax: 011 484 8953 / 086 240 6196

Website: www.eseta.org.za

8. FASSET

Financial and Accounting Services Sector Education and Training Authority

Address: Block A, Eva Office Park, Cnr Beyers Naude Dr & Judges Ave, Blackheath

Postal Address: P.O. Box 6801, Cresta, 2118

Tel: 011 476 8570

Fax: 011 476 5756

Website: www.fasset.org.za

9. FOODBEV

Food and Beverages Manufacturing Industry Sector Education and Authority

Address: 13 Autumn Street, Rivonia

Postal Address: P.O. Box 245, Gallo Manor, 2052

Tel: 011 253 7307

Fax: 011 253 7333

Website: www.foodbev.co.za

10. FP&M SETA

Fibre Processing and Manufacturing Sector Education and Training Authority

Address: 44 Hoofde Street, Braampark, Braamfontein

Postal Address: P.O. Box 199, Rivonia, 2128

Tel: 011 403 1700

Fax: 011 403 1720

Website: www.fpmseta.org.za

11. HWSETA

Health and Welfare Sector Education and Training Authority

Address: Private Bag X15, Garden View, 2047

Postal Address: Private Bag X15, Garden View, 2047

Tel: 011 607 6997

Fax: 011 616 7392 / 011 616 7393

Website: www.hwseta.org.za

12. LGSETA

Local Government Sector Education and Training Authority

Address: 47 Van Buuren Road, Bedfordview

Postal Address: P.O. Box 1964, Bedfordview, 2008

Tel: 011 456 8579

Fax: 011 450 4948

Website: www.lgseta.org.za

13. MERSETA

Manufacturing Engineering and Related Services Sector Education and Training Authority

Address: The Atrium, 95 7th Avenue, Corner Rustenburg Road, Melville

Postal Address: P.O. Box 61826, Marshalltown, 2107

Tel: 010 219 3338

Fax: 086 670 0037

Website: www.merseta.org.za

14. MICT

Media, Advertising, Information and Communication Technologies Sector Education and Training Authority

Address: 19 Richards Drive, Gallagher Convention Centre

Gallagher House Block 2, West-Wing, Midrand

Postal Address: P.O. Box 5585, Halfway House, 1685

Tel: 011 207 2600 / 011 207 2622

Fax: 011 805 6833

Website: www.mict.org.za

15. MQA

Mining Qualifications Authority

Address: 7 Anerley Road, Parktown, Johannesburg

Postal Address: Private Bag X118, Marshalltown, 2107

Tel: 011 630 3501 / 011 547 2602

Fax: 011 832 1044 / 011 646 3416

Website: www.mqa.org.za

16. PSETA

Public Service Sector Education and Training Authority

Address: 353 Festival Street, Sanlam Building, Hatfield, 0028

Postal Address: Private Bag X916, Pretoria, 0001

Tel: 012 423 5730 / 012 423 5736

Fax: 086 536 5646

Website: www.pseta.org.za

17. SASSETA

Safety and Security Sector Education & Training Authority

Address: 2nd Floor, Gallagher House, 19 Richards Drive, Midrand

Postal Address: P.O. Box 7612, Halfway House, 1685

Tel: 087 820 1753

Fax: 011 805 6630

Website: www.sasseta.org.za

18. SERVICES SETA

Services Sector Education and Training Authority

Address: 15 Sherborne Road, Parktown

Postal Address: P.O. Box 3322, Houghton, 2041

Tel: 011 276 9618

Fax: 011 726 4418

Website: www.serviceseta.org.za

19. TETA

Transport Education and Training Authority

Address: 2nd Floor Sonsona Building, 344 Corner Dover and Pretoria Street, Randburg

Postal Address: Private Bay X10016, Randburg, 2125

Tel: 011 781 1280 / 011 577 7106

Fax: 011 781 0200 / 086 765 0519

Website: www.teta.org.za

20. W&RSETA

Wholesale and Retail Sector Education and Training Authority

Address: Riverside Office Park, Hennops House, c/o Lenchen and Heuwel Ave, Centurion

Postal Address: P.O. Box 9809, Centurion, 0046

Tel: 012 622 9509

Fax: 012 633 9585

Website: www.wrseta.org.za

21. INSETA

Insurance Sector Education and Training Authority

Address: Oakhurst Building Ground Floor, North Wing, 11 St Andrew Road, Parktown 2193

Postal Address: P. O. Box 32035, Braamfontein, 2017

Tel: 011 381 8900

Fax: 011 484 0862

Website: www.inseta.org.za

Sourced: Department of Higher Education and Training Website: www.dhet.gov.za

Appendix E: Analytic Memo

INTERVIEW RESPONSE ANALYSIS FRAMEWORK: KEY POINTS EXTRACTED FROM CODING RELEVANT TO KEY QUESTIONS

INTERVIEW CATEGORIES	QUESTIONS 1: HOW THE NSF/SKILLS DEVELOPMENT SYSTEM INITIATES SKILLS PLANNING AND IMPLEMENTATION FOR GS	QUESTIONS 2: HISTORY AND INVOLVEMENT OF NSF/SKILLS DEVELOPMENT SYSTEM IN GS	QUESTIONS 3: NSF/ SKILLS DEVELOPMENT GRANTMAKING SYSTEM – HOW IT REFLECTS INTEGRATED SYSTEM OR NOT	QUESTION 4: WHAT MECHANISMS INFLUENCE ROLE AND POTENTIAL OF NSF GRANT MANAGEMENT SYSTEM TO RESPOND TO GS DEMANDS	QUESTION 5: HOW CAN NSF / SKILLS DEVELOPMENT SYSTEM POTENTIALLY BECOME MORE RESPONSIVE TO GE IN SA
NSF Respondents					
Respondent 1: INSTITUTIONAL DIRECTOR	Same with all other priorities, the fund would identify a priority area. Identify domains of delivery and dynamics towards a sustainable supply. <i>“The mandate of the NSF is to fund national priorities as per NSDS III. One of the priority areas is green</i>	Legislative mandate: NSDS III (green skills) NSF Responses e.g. SARETEC. GS initiatives are linked to PSET institutions.	Demand driven or the creation of demand. NSF flexibility to fund the whole pipeline. As a catalytic fund. “	Efficient and effective skills planning mechanisms, mechanism to determine current and future demands. What type of skills is required? To determine the	To enable learning institutions to become more responsive to green skills needs. Skills planning function emerges as crucial to determine the required skills needs and inform the NSF’s allocation of resources.

	<i>skills " The NSF responded to this e.g. SARETEC project'</i> SARETEC infrastructural provision for theoretical, practical and workplace <i>GS learning interventions. "the role of skills development funding via the NSF is assumed as funding not only for the sake of training and informed by national policy imperatives like the green economy but also for employability".</i> Dedicated skills planning processes to be able to identify GS skills needs. There is a need to look at / align with other national strategic plans e.g. energy.	<i>"this process can clearly not be enough nor the most effective way in making sense of strategic policy direction and the implications for a funding agency",</i> NSF tries to link its funding to learning institutions and strategic interventions like the SARETEC project. <i>"green skills funding has become a national priority"</i>	The NSF has the responsibility to put in place the entire pipeline. Demand driven and the creation of demand based.	demand on an ongoing basis. Skills intelligence mechanism	
Respondent 2:	NSF from a skills development angle to	Direct involvement in GS projects like SARETEC	<i>'All the programmes of the NSF must be aligned</i>	Government strategies, policy	The establishment of NSF regional offices. Specific funding requests.

	support government and national priorities. <i>GS is a high priority.</i>	project. GS is part of IPAP and strategic policy documents. GS is key to the programmes in TVET colleges. Funding and management side of GS are strengths.	<i>to the White paper' The alignment of funding policy becomes key to the NSF's response modalities.</i>	frameworks investigate funding opportunities	The NSF's ability in grant making becomes an important mechanism.
Respondent 3	NSF does not do its own research. It responds to third party proposals. CPUT (SARETEC) is a case in point. The NSF was approached as a funder. A decision was taken to place the SARETEC within a higher education institution e.g. CPUT. Make sense of government policy initiatives e.g. energy sector (GS). 'What is government doing that is consistent that is proposed?' We plan around the next five years. Those priorities that come out of your IPAG and NGP become funding priorities. <i>Short coming is that we don't</i>	GS initiatives are fairly new. NSF has some track record in funding environmental projects. <i>"The notions of green growth and green skills were not fully coined during the NSDS I period (2001-2005)".</i>	It's difficult to find integration. The White paper promises integration. We are still struggling to deal with the historical fragmentation of skills development component e.g. universities and TVETs. Hence, the call for integration. TVET system we have oved away from funding NCV and Report 191 programmes because it could be perceived as duplication. There is no plan to articulate BSC university graduates into candidacy for example. SETA integration emerges as a huge challenge.	<i>We need strong partners. It is difficult to drive all these initiatives alone. We depend on third parties who are strong. If you have a concept, you can talk to us. We participate in the EC GS forum to open up to funding possibilities.</i>	NSF must be at the forefront of the discussions. As a development partner, we should be around the country, bring in experts and have seminars on a local level. Currently we only have a few interventions of GS around the coats e.g. windfarms. We should champion some of these initiatives.

	<i>go out there and look for project. '</i>				
Respondent 9	NSF is guided by the SDA and NSDS III. It gives direct responsibility to fund, NSA, HRDC and government priorities e.g. green economy and rural development. There are already institutions who come up with their own strategies. The NSF is not responsible to determine how the green economy with evolve. The NSF moves in support of what has already been identified by government. <i>When we engage with the department of energy, which talks to nuclear for example, whether there are specific skills are required'. It's not our responsibility to tell them. We work with the rest of government to see how we can support government initiatives.</i>	Involvement with NSDS, impact of the skills levy toward the broader SD. GS is debatable. Green awareness towards sustainable natural resources. <i>We need to call these skills green awareness and not GS.</i> A worker will put in windows with a green awareness towards preserving the natural resources. GS must be integrated into training interventions. There is a need for institutions to report on their carbon footprint. Engineering, to what extend is your work taking in consideration the carbon footprint. I don't see the GS as a silo. It should be integrated into society towards greening. Environmental protection emerges as an integrated phenomenon, of which greening is vital. <i>"not viewing green skills as</i>	Participants are involved e.g. NSF Grant's Committee. This structure is composed of various DHET stakeholders. The White Paper does not distinguishes the NSF but ensures that the NSF plays an integrated role. <i>There is no way that we cannot fund a university to train more doctors.</i> All the systems forming part of the PSET sector are important for the NSF and require skills needs.	Policy environment Provision of targeted strategies. Study tours to investigate the most suitable mechanisms. Information at our disposal becomes a mechanism of response Funding allocation People play they role Funding responsiveness is based upon research that was already done.	<i>'To Broaden partnerships'</i> The need for integrated communication. We are funding of promote the production of a specific skill. <i>Education is a matter of integration. Green awareness, act green do green. Dedicated funding within a context where you become irrelevant because you find yourself in silo.</i> Interesting developments in Basic education domain – more research is needed on what are the most effective ways to bring environmental education to young people. <i>How to you bring the infusion of environmental awareness and preservation into learning subjects?</i>

		<i>distinctly different to the skills agenda in general”.</i> <i>“the launch of a ground-breaking project in 2014, as part of the NSF’s infrastructure development commitment of a world-class renewable energy training facilities for the South African Renewable Energy Technology Centre”</i>			
Respondent 10	NSF’s funding strategy is produced on the basis on what the NSDS flags. NSF’s response should be distinctive in relation to what the SETAs are doing but this remains highly questionable. The NSF’s role has been broadened towards building skills development capacity e.g. SARETEC infrastructural funding. The NSF’s funding expertise in this area	Project of the SARETEC project. South African Renewable energy technology centre. Highlighting the need for research and product development. Development of a qualification for the country’s first wind turbine technicians. Solar panel qualification is also being developed. There are other sources of energy e.g. fossil fuels not just wind energy. <i>The SARETEC project was conceptualised</i>	SDA requires the NSF to takes its mandate from the NSDS. However, there are certain things that basic education should take responsibility for. <i>Unfortunately, the lines have become blurred in terms of skills development responsibility. Since NSF is part of DHET, there has been a concerted effort to invest funds in the public education and training system. As long as the core funding comes for</i>	The NSF does not have a research unit. This is a stumbling block. There appears to be no linkages. An example thereof is the Gautrain. The NSF has not contributed anything towards skills development. We are not planning towards the required skills needs. There is not only no forecasting.	The NSF’s structure does not allow it to move independently. The NSF is part of the DHET. DHET dictates how the NSF should allocate its funding. Even if the NSF’s research unit comes up with recommendations, the final decision-making power vests with DHET. The NSF needs a research/skills planning unit or capacity to inform the NSF’s funding initiatives. Set up a tracking system and measure impact in terms of beneficiaries. Also, an effective reporting system will help. <i>Experience in Germany, there is great industry participation</i>

	becomes extremely demanding.	<i>by national policy documents like SIP 8 and SIP 14, and strategic Master Plan (DOE) energy plan.</i>	TVET NCV programmes, the main focus will be on these programmes. People follow the money.	There is seems to be no alignment between what we are planning and the actual needs. It's not only about green skills. The NSF should actually be able to respond to any emerging economy. The skills levy grant system is inflexible. <i>For example, in terms of energy, there should be a kind of interdepartmental steering committee to ensure maximum responsiveness. The NSF comes at the tail, by saying here is a nice proposal. The NSF is reactive.</i>	<i>because they are selling their products like wind turbines. Procurement of services and goods must also be informed by skills planning designs. Is it the NSF's responsibility to look after green skills? Ultimately it would be the department of energy's responsibility.</i>
Affiliated institutions					
Respondent 4	GIZ has driven the green agenda very hard. GIZ has done a lot in this space. First we identify which	Nature of the skills levy. It was agreed that 20% would be earmarked for national priorities and 80%	Unfortunately, the skills levy has been seen as an alternative. We need to reposition the grant	The NSF relies on requests from provider. The NSF has the	I think the green economy should first find its roots. It is then up to

	occupations are priorities. GS should be an integral part of every sphere of skills development. GS should be added as an important dimension. SIPS is approached in the same way. <i>“green skills cannot be funded as a distinctly different funding ambience but rather should be seen as a key funding area which forms part and parcel of the scope of strategic funding in general”.</i>	would go for sectoral priorities. Under SAQA, the SETAs were free standing quality standard e.g. ETQA. I was always worried of the separation of green from anything else because all occupations have a green aspect to it. First big initiative e.g. we said to each SETA look at the informal economy and put together project e.g. but they did not go to the informal economy. Thethuka project with University of Fort Hare. <i>I am very sympathetic to the call of green skills. I don't see GS as separate but integrated into curriculum development.</i>	system to compliment. Otherwise, the levy grant is seen as a reserve fund by other DHET stakeholders.	opportunity for itself to define priorities. I don't think this has been effective used. I don't think GS is a national priority. <i>“not categorising green skills as a special field of interest or a dedicated skills domain”</i> GS should be integrated.	the NSF to design grants accordingly.
Respondent 5	Grant disbursement framework is a standardised way of organising funding resources. It's applicable and usable for response planning objectives, including green skills. Where do you put efforts that will make maximise impact? The framework	As a catalyst fund, the NSF need to start and respond to Green Skills. Mandate of the NSF should be aligned to the NSF's Public entity's status. It's all about linking to national structures. <i>Project Siyaphambili as an institutional project aims to help the NSF to become more effective and efficient</i>	NSF value- chain a project's value chain started long before contracting as such. For example a delay in beneficiary certification could adversely affect a project's value chain. Before you make a deal through contracting there is a lot of planning needed	It is importance to identify skills needs first. If one does not understand the need responses won't be well articulated. It will be very difficult for the NSF to respond effectively. There should be a	Green economy has certain challenges. 1. Understanding these challenges. 2. Who owns these problems? 3. Who do we talk to in order to address these challenges? 4. Establishing building blocks towards responding to these challenges. 5 The NSF will have the ability to dissect these challenges. <i>Three tiers of government where all of them are responding to the</i>

	gives the NSF the ability to respond to green skills and related challenges. <i>In the broader PSET system, the NSF is not the only role player. We should understand who is responding to what exactly in the PSET system.</i>	<i>as a fund.</i> The NSF is facing great need to expand its organisational capacity. E&Y is trying to bring additional capacity to enhance the effectiveness of the NSF. You cannot just respond to green skills without understanding the dynamics around the challenge green skills and the green economy.	and required. <i>To make this whole story work, all funding stakeholders e.g. SETAs must come on board. Coordination, cooperation and collaboration'. Policy and strategy must be aligned toward the same direction.</i>	mechanism to understand and identify green skills needs. The mechanism should be multi party based. We must look at the value chain of the PSET system. You would need a mechanism that understands what GS means and what kind strategic responses are needed. Important question is: is the NSF the driver thereof or just a contributor? The answer to this question will determine what role the <i>NSF is expected to play.</i> Another mechanism is the answer to the following question: <i>what takes priority or not? An NSF proactive response requires better understanding</i>	<i>same challenges. Also private sector is also responding. How do we coordinate these efforts?</i> How do we connect thinking, listening and understanding people and issues toward becoming more responsive? <i>The work of the NSF is inherently good and the need is huge.</i> Determining the portfolio of needs that must be addressed. We must also develop the appropriate programmes in line with these needs. Project and programme delivery responses must be by design.
Respondent 6			The NSF was always part of the PSET system.		

				<i>enough about GS and skills development challenges. An integrated NSF skills planning mechanism will be able to address this concern.</i>	
Respondent 7	The link between skills planning and implementation can be stronger. We are providing skills planning information to the NSF, universities and other key DHET stakeholders. We highlight those occupations that are in high demand without prescribing particular responses. An inter branch mechanism is in place where skills planning and implementation challenges are discussed as a shared concern.	Involvement-establishment of the skills planning unit and related preparations. Also identifying occupations in high demand and environmental skills. <i>We must define what a skill is. It means different things to different people e.g. skills could be seen as equivalent to occupations.</i> We must unpack what the word skills means. Strong emphasis on skills in relation to occupations.	<i>I don't think NSF's role is to identify skills shortages. The NSF should rely on other stakeholders to identify skills gaps e.g. the DHET skills planning unit.</i>	The OFO becomes the fundamental basis of skills requirements. This is in line with the White Paper expectations in terms of the DHET skills planning unit. Green occupations should be part of the OFO. If the OFO is weak, it will detrimentally affect the whole PSET system. <i>The OFO can guide the NSF's funding strategy formulation.</i>	The establishment of a dedicated skills planning unit becomes critical. One of the core functions of the skills planning unit is to do the skills planning research. The funding thereof is important. The identification of occupations in high demand becomes critical. <i>The OFO becomes the central, core and the basis on which occupations are identified. The starting point is the OFO. If green occupations are not in the OFO, we won't be able to organise funding resources effectively. If we don't have a classification for green occupations, we won't be able to effectively respond to green skills.</i>
Respondent 8	In South Africa, what is the equivalent skills and occupational	Strategic fit of the National Lottery Board is much broader. Scope of the	The implementation of the strategic projects also provided valuable lessons	Propagating for a more focused/strategic	Funding models should expand and integrate funding impact towards the sustainability of the

	requirement? Reliance on other platforms to inform grant allocation. For example placement of interns as a more structured learning areas. Effectiveness and long term investment becomes important. More investment is needed into our knowledge management systems towards proper documented trail. <i>“How much of the NSF grant funding is playing a role as replacement cost contributor and not the role of complement contributor?”</i> <i>The implementation of the strategic projects also provided valuable lessons (positive and negative). It demonstrated the potential of facilitating meaningful impact if there is alignment with government priorities, i.e. Provincial Government Development Strategies</i>	funding is broader. Different sources of alignment e.g. legislation e.g. charities get a percentage of funds. Charity sector called for a specific purpose e.g. ECD. How is how our funding informed by legislation and how we support strategic objectives e.g. infrastructural development in rural areas. Skills development is also a focus area in relation other intervention. GS do you look at it as a stand-alone or should be integrated? How do we integrate the issue of skills development? It's about broader issues as well. Strategic projects done with provinces because small funding was dedicated to needs emanating from PGDS which is industry, and sectoral based, including green projects. Challenges: business processes and turnaround times. Structure, levels of delegation, governance	(positive and negative). It demonstrated the potential of facilitating meaningful impact if there is alignment with government priorities, i.e. PGDS's of provincial governments and sector plans of SETAs. On the negative side, it highlighted some of the strategic risks related to collaboration/dependency on 'others' to deliver on your brief as a funder including lack of capacity by partner to implement projects , inability to effectively extract and convert training needs into plausible funding proposal, as well as 'deadweight effect' whereby instead of 'additionality', beneficiaries could potentially just use your funding to replace their own training budgets, and shift the same to other budget items.	approach to grant making is not contradicting the notion that our funding must serve the broader SA community (as some stakeholders will argue). Will have to make difficult choices/unpopular decisions in pursuing an objective of facilitating better impact/return on investment of scarce resources. Hence it is critical that we are cautious that even the stated objective of aligning our funding to government priorities doesn't unintentionally drive us back into a 'shotgun' approach whereby we try to be everything to	organisations. NLB funding is sectoral based e.g. vegetable gardens. Integrate green skills and environmental components e.g. green technologies towards greater sustainability. <i>“We will have to make difficult choices/unpopular decisions in pursuing an objective of facilitating better impact/return on investment of scarce resources”</i> <i>Governance and operational models must facilitate effective and efficient funds disbursement (including project management approach)... Need for paradigm shift: from output driven (short-term) to outcome based funding (long term)... As the case with a lot of government programmes, the NSF's effectiveness was also hampered by an inappropriate institutional arrangement, which impacted inter alia negatively on the governance, accountability and agility of the fund (Respondent 8). Hence it is critical that we are cautious that even the stated objective of aligning our funding to government priorities doesn't unintentionally drive us back into a shotgun approach whereby we try</i>
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	<i>(PGDSs) of provincial governments and sector plans of SETAs. On the negative side, it highlighted some of the strategic risks related to collaboration/dependency on 'others' to deliver on your brief as a funder including lack of capacity by partner to implement projects, inability to effectively extract and convert training needs into plausible funding proposal, as well as 'deadweight effect' whereby instead of 'additionality', beneficiaries could potentially just use your funding to replace their own training budgets, and shift the same to other budget items.</i>	<i>structure as the best possible institutional arrangement and aligned to its business requirements. ... programme/project evaluation is important not only for the end of project life cycle periods but information obtained by these reflections should inform project/programme planning and design process.</i>		<i>everybody at the same time.</i> <i>Increasing importance of M&E</i> <i>Must put more emphasis on measuring outcomes/impact, although not simple task. Amongst other things proving causality (between funder's intervention and outcome) could prove to be difficult. ... (Grant-making organisations) Must put more emphasis on measuring outcomes/impact, although not a simple task. Amongst other things proving causality (between funder's intervention and outcome) could</i>	<i>to be everything to everybody at the same time.</i>
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				<i>prove to be difficult.</i>	
Green skills institutes					
Respondent 11 (Training provider perspective)	Plans to modify infrastructural developments at the college Implementation challenges: very few providers that can supply sustainable services	Involved with a pilot green skills project with GIZ. To develop green skills training programmes. Germany study tour to look at wind energy solutions. Some green skills interventions needed funding e.g. development of green skills qualifications. <i>There is a great need for green skills qualifications e.g. Solar panel water qualifications.</i>	<i>Integration is a challenge because the training provide landscape remains fragmented.</i> Little employment opportunities. The expectations around green skills remains unrealised.	<i>Awareness- as a mechanism. Providers become inoperative due to lack of awareness, lack of funding mechanisms,</i>	Installation is a way of maximising impact in the area of green skills. <i>There are not enough of skills. Hence providing training emerges as an important challenge.</i>
Respondent 12 (Provincial Government perspective)	<i>The NSF's grant management system displays a strong reliance on training providers. It is expected of provincial training providers to conceptualise their own project needs in relation to contextual skills</i>	Involvement in the 1980's green movement. Strong expectation is evident to see a shift from consumer to producer. Strategic alignment is critical e.g. with the Department of Economic Development. <i>Green skills was only</i>	There are cross cutting flexibility e.g. the NSF's grant management system supports the policies of DHET. The emergence of the Eastern cape Green skills Forum provides a good stakeholder base for the	<i>The absence of the NSF at key and strategic engagement such as the SIPS meetings on national provincial level is alarming. Hence the presence</i>	The NSF is one of the main drivers behind the GIZ study tours to Germany. This experience has taught us that a demand for lower level green skills jobs are required. <i>A framework is required to inform funding allocation decisions. Long term skills planning is required.</i> Funding should be allocated

	conditions. <i>Hence the articulation of project proposal becomes of strategic significance.</i>	<i>conceptualised around 2009/2010.</i>	NSF to receive stakeholder feedback on Green skills. <i>A lack of feedback appears to stifle responsiveness.</i> Also, a lack of support from DHET, more can be done from DHET.	<i>of the NSF as a key funding mechanism at these engagements emerge as very important. The NSF's role should be valued as an education specialist, trying to be proactive, fully participative and collaborative.</i>	strategically towards emerging skills needs such as green skills.
Respondent 13 (National Government perspective)	DHET pursues mainly partnerships e.g. through university of Nelson Mandela Metropolitan University and TVET colleges	Involvement through GIZ and DHET study tours- a strong focus on renewable energy from a national perspective. <i>Green skills has a two fold focus. Firstly a) on skills development on green economy and secondly, b) skills development on green jobs.</i> The DHET is contributing towards these focus areas through green skills projects such as the Dual System Pilot Project and the introduction of Renewable energy technologies at TVET colleges.	<i>DHET partners with Department of basic Education to ensure that Green skills are incorporated into curriculum development. Responsiveness is also pursued through the introduction of green technology at school especially technical high schools.</i>	<i>GIZ is assisting lecturing and to undertake study tours. These initiatives are funded through the NSF. The NSF becomes very handy in supporting the training of college lecturers. The NSF is a very important mechanism responding to green skills needs in the country.</i>	<i>The NSF is one of the main providers of funding resources. Green skills is very broad and is a new concept in our country. There are different green economy opportunities e.g. ocean economy. If the NSF can play a role, assisting in these opportunities, it will help the needs of the country.</i>

Respondent 14 (Green skills Research perspective)	<i>SETAs tried to understand the concept of green skills. SETAs are taking green skills seriously but information produced don't get properly processed. A deeper understanding of what is happening in the workplace is required. Over all, responses have not been concentrated and focused on integration. Generally, green skills is understood as important.</i> <i>However, the absence of a green sense making is not the only concern. There are other problems e.g. effective funding. How do we address the lack of green skills responsiveness in terms of funding readiness?</i>	Since the 1990s, the notions of sustainability and green skills are linked to South Africa's developmental agenda e.g. 'one nation'- 'development challenges', Comprehensive understanding/awareness of environmental education. There is a need for a training component that is comprehensive. During the 1990s we were already working with the national system e.g. SGB to ensure qualifications in environmental education. Last five years: The emergence of national strategies such as the Bio diversity strategy which focusses on biodiversity scarce skills and needs for transformation in the country. Also, the National environmental sector skills plan is another example.	Not integrated at all. There is so much that does not sit with a particular Seta. The NSF could pick up on these issues. A number of gaps and crosscutting issues are evident. For example First green skills study was in mining. Number of scarce skills identified in this study, pertains to the water sector. <i>Green skills emerges along the following pivotal angles namely: a) social justice, b) technology and c) regulation.</i>	Policy mechanism e.g. NSDS Compliance mechanism tick box Compliance – evaluation Political interpretation Capacity and commitment of people working in green sectors. Mechanism of outsourcing research is very unfortunate. The kind of research is fragmented and repetitive and not all adding up. How is the research being used? Absence of a mechanism to work with the research	Already responding- SETAs have done call for green skills research. <i>But they need to become for effective. Greater need for cross cutting and integration. A more systematic building of research work.</i> <i>Problem is the environmental sector is fragmented. There is a need for an entity to coordinate. In all of its diversity. Coordination and deep knowledge of biodiversity jobs. No dedicated entity that looks at environmental skills planning. More investment in the skills, and greater sustainability.</i> <i>We need to invest money so that we have capable people in the different environmental sectors.</i>
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		Green fund was for a catalytic purpose. <i>The interest in green skills training is rising. 25 students were signed up for the first green skills course at Rhodes.</i> <i>Green skills is not well theorized in RSA in terms of conceptualization. Greater international references are available in general. GS is more nuanced only as technical skills and individualized training.</i>		that was already done. <i>More meaningful monitoring and evaluation to enrich response patterns.</i>	
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