

CHAPTER 7

Social and Economic Impacts

CHAPTER 7:

Social and Economic Impacts

Integrating Authors:

Prof Doreen Atkinson (Team leader, macro-economics)¹, Hannes Gerber (Agriculture)², Prof Andrea Saayman (Tourism)³, Prof Elmarie Slabbert (Tourism)³, Dr Stephanie Borchardt (Institutional)⁴, Prof Johann Kirsten (Agriculture)⁵

- ¹ Karoo Development Foundation
- ² ARID-Eco cc
- ³ North-West University
- ⁴ University of Stellenbosch
- ⁵ Karoo Development Foundation



BOEGOEBERG SE BAAI¹

Recommended citation: Atkinson, D., Gerber, H., Saayman, A., Slabbert, E., Borchardt, S. & Kirsten, J. (2026). *Chapter 7: Social and economic impacts* in Schreiner, G., Mqokeli, B., Snyman-van der Walt, L., Lochner, P. & Tsedu, R. (eds.). (2026). *Work Package 2: Strategic Environmental Assessment for the Proposed Boegoebaai Port, Special Economic Zone and Namakwa Region*. CSIR/SPLS/Ems/EXP/2026/0001/A, CSIR: Pretoria: ISBN 978-0-7988-5676-8. Available at [Boegoebaai Port | CSIR](#)

¹ Image: <https://pulitzercenter.org/stories/northern-cape-south-africas-emerging-powerhouse>

Executive Summary

Overview and study design

1. This chapter is a high-level overview of the likely impacts of the proposed Port, GH2 project and the SEZ. It is not based on original empirical work or community consultation. Instead, it relies on secondary sources, drawn from South Africa and internationally. The chapter will enable top-level decision-makers to understand overarching risks, benefits and possible lines of future enquiry. The SEA process precedes policy decision-making, inputs by interested and affected parties (I&APs), as well as Environmental Impact Studies (EIAs).
2. The study includes three distinct layers of complexity: (a) the Port, the GH2 project and the SEZ; (b) the time period, up to 25 years; and (c) the types of impacts, ranging from *direct* to *indirect* and *interventionist* (corporate social responsibility).
3. For this chapter of the SEA, the goals are:
 - (a) *Assess the social sensitivity of local and regional receiving environments:* This is done in terms of the tourism (the most significant growth sector of the region), agriculture and mining sectors, as well as institutions and social cohesion.
 - (b) *Classify spatial regions, based on multiple criteria, as being more, or less, suitable for future development:* The study focuses on the Richtersveld jurisdiction (Port Nolloth), Nama Khoi (Springbok), Khai-Ma (Pofadder) and Kamiesberg (Garies), in that order of priority. Richtersveld will host the actual projects, and will be most affected; Springbok will become a key economic hub in the region; Pofadder will be the key town on the SEZ corridor; and Garies (and surrounding towns) are likely to become the main tourist hubs. In all these cases, there will be pressures on transport routes, used by project-based trucks, local residents and tourists; in Richtersveld itself, urban development and housing provision will be crucial, and several infrastructural designs will need to take cognizance of those imperatives.
 - (c) *Identify strategic-level constraints, opportunities, cumulative impacts, and strategic management actions:* These will be related to spatial planning, institutional support for municipalities, Corporate Social Investment (CSI) activities, and significantly, public engagement systems.
 - (d) *Provide an integrated decision-making framework and suite of tools, to guide project developers, practitioners, and policymakers:* We provide three consultative approaches (PDIA or Problem-driven Iterative Adaptation; FPIC, or Free, Prior and Informed Consent; and a “Green Hydrogen toolbox”) which have been developed in other localities and sectors.
4. *The likely macro-economic implications of the Port*
 - Regional impacts: Economic agglomeration near Boegoebaai, as well as along the SEZ Corridor
 - Property values along the coast are likely to increase.
 - Job creation: The lower skills-level jobs can become immediately available to residents of Namaqualand. In the longer-term, training opportunities can be provided to enable career pathing. Skilled Namaqualanders living elsewhere in the country may well return to take up jobs at Boegoebaai. Transport-related jobs will also be created. These jobs are likely to be much better paid than current Namaqualand wage levels, which would therefore stimulate multiplier effects in other sectors.
 - The Transnet CSI programme will encompass numerous sectors, including education, training, enterprise development, and social projects.
 - Business services and multipliers: This will take the form of *direct effects* (e.g. job creation, production, business and household income associated with the operations of the port itself); *indirect effects* (the stimulation of new suppliers of goods and services); and *induced economic*

effects (spending on other sectors as a result of the change in payroll of both directly and indirectly affected businesses). Numerous multiplier causal effects will be set in motion.

- Transport mix: The Port business case envisages a small amount of agriculture and general cargo to be shipped in the early years of the port, and to be phased out later, so that the port becomes a dedicated ore, GH2 and diesel facility. However, in the light of the importance of the port for nearby intensive agricultural projects, as well as a growing number of general industrial and commercial firms that may develop as a result of the Boegoebaai projects, we argue this plan should be reconsidered.
- There are likely to be “boom” impacts, particularly during construction; such impacts can be positive or negative for social and human development indicators. Unlike the closure of mines, there are unlikely to be such drastic “bust” consequences, as construction processes are likely to be lengthy and sustained over time. It is also possible that assertive upskilling efforts can enable construction workers to join the projects as permanent employees.

5. *The likely macro-economic impacts of the Green Hydrogen (GH2) project*

- Local communities can benefit from grid-related renewable energy at Boegoebaai. Remote communities can benefit from green hydrogen cells as backups to local solar energy plants, which will be much cheaper than extensions to the electricity grid.
- The GH2 investment may encourage subsidiary industries to relocate themselves near Boegoebaai, thereby promoting investment multipliers in the Namaqualand region.
- The GH2 project will require a large investment in technical training at school and post-school level in the Namaqualand area, including expanding training at the Springbok TVET college. The training of artisans must be fast-tracked.
- Local enterprise development can include measures to implement local preferential procurement, where possible; attracting enterprises to Namaqualand; stimulating the creation of new enterprises; and incubating enterprises with specialised skills.
- The local production of GH2 and ammonia could stimulate local green fertilizer production which can be beneficial for decarbonising intensive agricultural enterprises in the region.
- Desalination plants for GH2 production can be expanded to provide water for small remote communities near the coastline. New technology has been developed for undersea desalination plants, with greatly reduced energy consumption.
- Disaster management skills will need to be upscaled significantly in the area, in partnership with Richtersveld LM and Namakwa DM. Additional heavy truck traffic on the roads will also require more intensive disaster management capabilities, including dealing with hazmat situations.
- Regional partnerships with Government, the private sector, technical institutions and civil society will be required to address regulatory hurdles and promote investment solutions.
- Procedural justice and “Future proofing” are key principles to ensure that due process and legal requirements are followed, and that any energy stakeholder, when making decisions, will rely on existing best practice in the relevant field.
- A proactive approach of introducing GH2 to surrounding communities needs to be undertaken.
- Community engagements must be an ongoing process, and municipalities must be supported to appoint technical staff who can manage local economic development, spatial planning and infrastructural development.

6. *The likely macro-economic impacts of the SEZ:*

- The Namakwa SEZ, along the N14 corridor, will connect mining hubs like Aggeneys, Sishen and Postmasburg with the proposed Boegoebaai Deep-sea Port. The SEZ is based on the concept of agglomeration economies, i.e. firm-level cost-savings and productivity gains from the spatial concentration of firms and people in economic clusters or cities.
- This requires the creation of robust regional institutional networks to co-ordinate the activities of the SEZ.
- The potential negative impacts of ore trucking on the road system, as well as traffic and intensive road-side services, make an imperative case for building a rail network for ore transport, from the

beginning of the project. The revival of Transnet, combined with strong private interest in running rolling stock, should make a business case for a possible **privately owned railway line from Postmasburg to Boegoebaai**. This can transport **copper and zinc** as well. Given that the life span of the manganese mines in the Kalahari is estimated to be over 100 years, this would be a sensible investment. The demand for copper is estimated to increase dramatically in future, due to the growing AI sector.

Social impacts

7. The dynamics of diamond mine closures in the Richtersveld and Kleinsee have created a legacy of unemployment, town deterioration, municipal management challenges, and illegal mining, which will need to be addressed in any future developments.
8. There is a high level of out-migration of young working people, to seek better opportunities in the cities. They may return to Namaqualand if there are new job opportunities.
9. The “boomtown” effect of rapid construction at Boegoebaai may trigger rapid in-migration, which may trigger conflicts with local people, social dysfunctions (e.g. teenage pregnancies) and crime. Timely interventions can support community solidarity.
10. Health services will be important for a larger population, as well as accidents on the Boegoebaai projects. The decline in HIV/AIDS services, with the closure of the US-funded PEPFAR programme, will lead to increasing AIDS-related treatment requirements. This is an important option for CSI programmes to help to “close the gap” on HIV testing.

Poverty and incomes

11. The new projects at Boegoebaai will cause food and housing prices to increase significantly, and this may place added pressure on poor families. Levels of inequality will increase, between those local people who benefit from these projects, and those who do not get access to jobs, which may lead to new social cleavages and resentment.
12. Richtersveld has a housing backlog of about 160 units, and there is no public money earmarked for housing in Richtersveld at present; the main infrastructure spending priority is water provision, which is extremely challenging in that arid area. Where water is pumped from the Orange River, it is expensive to operate and maintain, placing more pressure on the municipal fiscus.

Tourism

13. The Namakwa District in the Northern Cape includes at least five well-known tourist towns: Springbok, Port Nolloth, Garies, Kamieskroon and Hondeklipbaai. The Northern Cape Provincial Spatial Development Framework refers to the Namaqualand area as the “Ocean, Desert and Flower Cluster”. Adventure tourism and agri-tourism and biodiversity form the backbone of Namaqualand’s tourism offerings, and new areas have been identified for protected area status. Several cultural history themes are becoming prominent, including indigenous culture, the Christian missions, museums, the mining history (diamonds and copper), the Okiep-Port Nolloth railway line, shipwrecks, and the Anglo-Boer War. The towns offer a variety of accommodation options, which is a good basis for future development. As recognised in several official strategies, tourism must be promoted as an important sector of Namaqualand’s economy. This includes branding, marketing, and tourism training for service providers.
14. Ore trucking is likely to have a major negative impact on tourism, due to heavy and noisy traffic, road safety, air pollution, ore dust, road maintenance delays, intensive road-side services (such as petrol stations and truck stops) that destroy the ambience of the region, and an influx of trucking staff. A railway line for ore trucking will be imperative, to prevent the destruction of decades of investment in tourism, nature conservation and heritage.

15. The Boegoebaai harbour and industrial site can become a tourist destination in its own right, particularly focusing on green energy and shipping displays.
16. Richtersveld is known for its National Park, as well as the World Heritage Site. This celebrates the indigenous Nama culture, as well as the remarkable biodiversity and geology of the lower Orange River area. The Richtersveld CPA is a stakeholder on the communal land, and needs to be consulted on future tourism developments.
17. The Boegoebaai Port and Green Hydrogen may undermine the leisured, rustic, remote atmosphere of Namaqualand. Accommodation and cuisine facilities may be overwhelmed by project staff members. Traffic volumes (particularly ore trucks), crime and lawlessness may detract from the environment of Richtersveld and the highways leading to the Port. Road maintenance and a bypass around Port Nolloth will assist in managing these problems.
18. To prevent encroachment on tourist towns, spatial planning and housing for the Boegoebaai projects should be directed at special-purpose accommodation for employees. Some facilities could be re-purposed for tourism at a later stage. Where possible, guest houses should not be used for project accommodation, as it would squeeze out tourists. Industrial development must be planned away from tourist corridors. Tourist transport may be directed away from the main trucking routes, possibly via Garies and Kamieskroon to the coast, and then northwards to Port Nolloth.
19. The Springbok airport should be upgraded to accommodate scheduled commercial flights, which in turn will enable car rental companies to invest in Springbok. This will benefit employees of the Boegoebaai projects, the SEZ companies, as well as tourists, business people, and medical services.

Agriculture

20. Agriculture in Namaqualand is highly constrained, due to the arid climate and the salinity of the soil. Nevertheless, farming remains close to the heart of many families in the district, for reasons of economic survival, as well as culture, heritage and lifestyle. Agriculture in this region has developed into two distinct sectors: Large-scale, well-capitalised commercial farmers, and small-scale, partially subsistence farmers.
21. The land restitution claim launched by the Richtersveld community was successfully concluded in a landmark court case in 2007, which recognised indigenous communities' rights to ancestral land. The Port has identified CSI opportunities to support agriculture in the district, including infrastructure, marketing, training, smart climate investments, and research stations. The Department of Agriculture envisages an Agri-park at Springbok, and six Farmer Support units in the vicinity. There needs to be ongoing discussions between the Port and agricultural agencies to dovetail their initiatives.
22. The Boegoebaai projects are unlikely to stimulate markets to promote livestock production, because of the dominance of the big retail chains in distribution networks.
23. Large-scale irrigation projects along the Orange River promote economic diversification in the region. Most of this product is exported, making the Boegoebaai Port a very attractive asset. In Richtersveld, 408 ha are under intensive cultivation. These projects are a major source of employment in the district.
24. Farmers in the district will benefit from improved telecommunications and renewable energy (solar, wind and green hydrogen).
25. Farmers will benefit from improved roads – if the roads are maintained well and enlarged sufficiently to accommodate the expected flow of construction trucking. This will enhance local economic development.

26. It is imperative that ore transport is done by railway line, to protect the damage of dust pollution in agriculture and tourism. The European Union's Carbon Border Adjustment Mechanism (CBAM) involves the imposition of a carbon tariff on imported goods, based on the level of embedded emissions in the goods and the carbon price paid by the manufacturers thereof in the country of origin.
27. For irrigation farmers, possible ore dust at the Boegoebaai Port will be a major problem, which would affect the quality of their exports. This will require remedial action to improve trucking and handling systems.
28. Green hydrogen should be marketed to farmers in the district as part of an innovation system of technology use, marketing and distribution.

Mining

29. The Vedanta Zinc mine and its processing facilities near Aggeneys will be a major spur to the regional economy.
30. Copper prices are likely to trend upwards, driven by the demand for copper in green energy projects and in the AI industry. The Transnet SEB study envisages that copper exports will be phased out from Boegoebaai Port, which seems counter-intuitive. A proper study of the copper sector potential should be undertaken. The international literature suggests increasing demand and prices, driven (inter alia) by renewable energy investments. The Boegoebaai port could increase the sustainability of copper exports.

Institutional, political and municipal issues

31. The proposed new multi-faceted project at Boegoebaai will rely heavily on a range of organisational capabilities on the part of municipalities.
32. The new District Development Model (DDM) places District Municipalities as the strategic point of focus in the intergovernmental system, by compiling and guiding the implementation of "One Plans" for their jurisdictions. They must also liaise between local municipalities and provincial or national departments. They should provide advisory and technical services such as infrastructure development, environmental health and district-wide planning.
33. In Nama Khoi (Springbok), two opposition parties, the DA and the Namakwa Civic Movement (NCM) govern in a coalition, which may set a trend for other municipalities in the region. Municipal governance has improved significantly in Nama Khoi LM. Namakwa DM appears to be well-managed. There are significant municipal services and financial problems in other municipalities, particularly regarding water quality and quantity.
34. Nama Khoi LM has a robust public participation approach, using several channels of communication. The other municipalities tend to have difficulties in promoting ward committee functioning.
35. The Boegoebaai projects and the added pressures on road trucking transport will require significant upscaling of disaster management capabilities in Richtersveld, Nama Khoi and Khai-Ma municipalities.
36. Municipal debt and financial shortages are problematic in Richtersveld LM. The municipality's financial system, including revenue flows, will need to be overhauled to improve its cash flow. The Richtersveld municipality's audit findings have highlighted concerns regarding unauthorised, irregular, and fruitless expenditure, which reflects poor governance and compliance with financial regulations.
37. In future planning processes, the diversity of sectors will require new forms of intergovernmental collaboration (national, provincial and municipal), as well as participation of key stakeholders on such

intergovernmental forums. This practice of Collaborative Government can be adapted from international experience.

Public engagement on the Boegoebaai projects

38. There are already concerns that the public engagement process concerning the Port and the GH2 projects have not been effective. This growing controversy highlights the importance of thorough community engagement.
39. The report proposes mechanisms such as the “Green Hydrogen Community Engagement Toolkit” and the “Problem-driven Iterative Process” (PDIA) to set the stage for open-ended and mutually-exploratory discussions. The Richtersveld Community Property Association (CPA) will be an indispensable negotiating partner and possibly an implementation partner as well.
40. A pre-negotiation scoping should be undertaken by a reputable facilitator, to assess the ways in which each party to the discussions will be able to participate.

Contents

Executive Summary	7-2
Contents	7-8
Tables	7-10
Figures	7-11

CHAPTER 7. SOCIAL AND ECONOMIC IMPACTS __ 7-12

7.1	THE IMPORTANCE OF THE BOEGOEBAAI PORT AND GREEN HYDROGEN COMPLEX	7-12
7.2	APPROACH TO THE STUDY	7-12
7.3	THE LIKELY IMPACTS OF PORT AND GREEN HYDROGEN PROJECTS	7-14
7.3.1	The Port	7-14
7.3.1.1	Regional impacts	7-15
7.3.1.2	Land ownership and land value	7-15
7.3.1.3	Business services and multipliers	7-15
7.3.1.4	Employment	7-17
7.3.1.5	Proposed Transnet CSI programme	7-19
7.3.1.6	Transport	7-19
7.3.1.7	Community engagement	7-20
7.3.2	Green hydrogen (GH2)	7-20
7.3.2.1	Employment	7-22
7.3.2.2	Transport	7-23
7.3.2.3	Energy sector	7-23
7.3.2.4	Manufacturing investment	7-23
7.3.2.5	Skills development	7-24
7.3.2.6	Business development	7-25
7.3.2.7	Agriculture	7-25
7.3.2.8	Urban management spin-offs	7-25
7.3.2.9	Governance	7-26
7.3.2.10	Community and municipal engagement	7-26
7.3.2.11	Summary	7-27
7.3.3	The SEZ and REDZ concepts	7-27
7.4	SOCIAL IMPLICATIONS OF THE PORT AND GH2 PROJECTS	7-29
7.4.1	Population growth and urbanisation	7-30
7.4.2	Employment	7-34
7.4.2.1	Employment by sector	7-34
7.4.2.2	Employment levels	7-34
7.4.3	Household incomes	7-36
7.4.4	Housing and spatial planning	7-37
7.4.5	Health	7-41
7.4.6	Education, skills and training	7-42
7.4.7	Social cohesion and social services	7-43
7.4.8	Economic support for local communities	7-47
7.4.9	Recommendations	7-48

7.5 MACRO-ECONOMIC IMPLICATIONS OF THE PORT AND GREEN

HYDROGEN COMPLEX _____ 7-48

7.5.1	The impact of the Port and Green Hydrogen on Namakwa economic sectors	7-48
7.5.2	The importance of economic diversification and local preference policies	7-51
7.5.3	Tourism	7-52
7.5.3.1	Tourism in the Northern Cape	7-52
7.5.3.2	The current offering in the study area	7-52
7.5.3.2.1	The accommodation and catering sector of the Namakwa District	7-52
7.5.3.2.2	The attractions in the Namakwa District	7-54
7.5.3.2.3	Thematic attractions which may benefit from additional investment	7-57
7.5.3.3	Challenges faced by the tourism sector in Namakwa district	7-58
7.5.3.3.1	Road and traffic management	7-59
7.5.3.3.2	Taking logistics to the next level: Expanding aviation	7-61
7.5.3.3.3	Protecting tourism in Namaqualand	7-62
7.5.4	Agriculture	7-63
7.5.4.1	The ecological potential and constraints of agriculture in the Namakwa region	7-63
7.5.4.2	The scale of agriculture in the Namakwa region	7-64
7.5.4.3	Land ownership types in livestock areas	7-65
7.5.4.3.1	Communal and commonage farming	7-65
7.5.4.3.2	Commercial farming units and trends	7-68
7.5.4.3.3	Land ownership in the Richtersveld jurisdiction	7-70
7.5.4.3.4	The likely impact of the Boegoebaai project on livestock agriculture	7-72
7.5.4.4	Large-scale and commercial production	7-73
7.5.4.5	Community-owned irrigation projects	7-75
7.5.4.6	The potential benefits of the Port and GH2 for agriculture	7-76
7.5.4.6.1	Port infrastructure	7-76
7.5.4.6.2	Local economic diversification	7-76
7.5.4.6.3	Improved infrastructure	7-76
7.5.4.6.4	Promoting agriculture through CSI	7-77
7.5.4.6.5	Biodiversity through CSI	7-78
7.5.4.6.6	On-farm Green Hydrogen use	7-78
7.5.4.7	Potential risks posted by GH2 to agriculture	7-79
7.5.4.7.1	Water: Household and Port water supply	7-79
7.5.4.7.2	Dust pollution	7-79
7.5.4.7.3	Waste management near the Boegoebaai plant	7-80
7.5.4.7.4	Air pollution and noise due to trucking (i.e. vehicle emissions)	7-81
7.5.5	Mining	7-81

7.6 INSTITUTIONAL CAPACITY IN THE REGION _____ 7-83

7.6.1	Institutions in flux: The political and social context	7-83
7.6.2	Municipal capacity	7-84
7.6.3	Political movements in the local and district municipalities	7-86
7.6.3.1	The African National Congress (ANC)	7-86
7.6.3.2	The Democratic Alliance (DA)	7-86
7.6.3.3	The Namakwa Civic Movement (NCM)	7-87
7.6.3.4	The National Economic Fighters (NEF)	7-89
7.6.3.5	The KhoiSan Revolution	7-89
7.6.3.6	Economic Freedom Fighters	7-89
7.6.3.7	The Freedom Front Plus	7-89
7.6.3.8	Congress of the People (COPE)	7-90
7.6.3.9	Patriotic Alliance and Good Party	7-90

7.6.3.10	Independent candidates	7-90
7.6.4	Municipal and civil society organisational capacity	7-90
7.6.4.1	Human Resources and staff performance	7-90
7.6.4.2	Public participation mechanisms	7-91
7.6.5	Municipal infrastructure management	7-93
7.6.5.1	Richtersveld LM	7-93
7.6.5.2	Nama Khoi LM	7-95
7.6.5.3	Khai-Ma LM	7-95
7.6.5.4	Kamiesberg LM	7-95
7.6.6	Municipal finance and audit performance	7-96
7.6.6.1	Richtersveld Local Municipality	7-96
7.6.6.2	Nama-Khoi Local Municipality	7-98
7.6.6.3	Khai-Ma Local Municipality	7-99
7.6.6.4	Kamiesberg Local Municipality	7-99
7.6.6.5	Namakwa District Municipality	7-99
7.6.6.6	General financial position of Namakwa Local Municipalities	7-99
7.6.6.7	Namakwa DM	7-101
7.6.7	Building institutional capacity	7-102
7.6.8	Planning for a potential Green Hydrogen and Harbour project	7-103
7.7	THE PUBLIC ENGAGEMENT PROCESS	7-109
7.7.1	Public participation in a contested environment	7-109
7.7.1.1	Learning from the mining sector and renewable energy	7-109
7.7.1.2	Difficulties envisaged in the Namaqualand region	7-110
7.7.1.3	Current mobilisation in Namaqualand	7-112
7.7.1.4	Re-thinking institutional culture: Beyond technicism	7-113
7.7.2	The difficult world of Community Property Associations (CPAs)	7-115
7.7.3	The Problem-driven Iterative Adaptation (PDIA) approach	7-117
7.7.4	The Green Hydrogen Community Development Toolkit	7-119
7.7.5	Free, Prior and Informed Consent (FPIC)	7-120
7.7.6	Conclusion: Positive legacies or a “sacrifice zone”?	7-122
7.8	RISK ASSESSMENT	7-122
7.9	REFERENCES	7-138
7.10	DIGITAL APPENDICES 7-A & 7-B	7-148

Appendix 7-A: Socio-economic and institutional data

Appendix 7-B: Economic data

Tables

Tourism enterprises and rooms in four municipalities	7-53
Trips and bed-nights in four municipalities, 2019-2023	7-54
A possible composite marketing strategy for Namaqualand	7-57
Trends regarding Act 9 Trust Land (TRANCRAA land)	7-65
Overview of Basic Services in Richtersveld Municipality	7-93

Summary of Service Delivery Challenges and local impact	7-94
Richtersveld Local Municipality financial overview	7-98
The following table provides a breakdown per locality and per intensity of risks and opportunities:	7-124

Figures

Population shifts in four Namakwa LMs	7-31
Population, Richtersveld settlements, 2011 and 2021	7-33
A new “boomtown” area: Intensive housing and industrial developments planned for Alexander Bay and Boegoebaai	7-40
Areas earmarked for wind energy development (left) and solar energy development (right)	7-59
Current main tourist thoroughfares	7-61
The enlarged TRANCRAA areas	7-67
Land ownership in the Richtersveld area: Richtersveld CPA, municipal, government, and private land	7-70
Land reform farms , marked in red, purchased for the Richtersveld CPA (communal area)	7-71
The bulk of intensive irrigation cash-cropping is located in Khai-Ma LM (3 563 ha) and Nama Khoi (1 277 ha). In Richtersveld, only 408 ha are utilised for this purpose.	7-74
The price of copper in US\$, 1992-2022	7-82
Namakwa District Municipality and its six Local Municipalities	7-84
Richtersveld	7-85
Operating Budget Revenue Sources (2020/21) : Richtersveld LM	7-97
Right: The NSDP already makes provision for Boegoebaai as a key import/export node. This will be rolled out through the national and provincial departmental strategic plans, as well as municipal IDPs and SDFs.	7-105
Left: The Port Nolloth-Springbok-Poffader area is part of the North-Western National Spatial Transformation and Economic Region (NSTETR) , one of three important spatial areas in the country.	7-105
The NSDP demarcates the Namakwa area as part of the “Arid-Agri innovation region marked as “Region 8”, with Springbok as a key hub.	7-105

CHAPTER 7. SOCIAL AND ECONOMIC IMPACTS

7.1 THE IMPORTANCE OF THE BOEGOEBAAI PORT AND GREEN HYDROGEN COMPLEX

This chapter considers the potential social and economic benefits and risks of one of the largest public-private investments ever proposed for the Northern Cape. The Namakwa District Municipality is poised to play a key role in the country's transition to renewable energy, particularly in the development of green hydrogen. This section examines possible benefits, and the associated risks, particularly in relation to economic sectors, social cohesion, land use, economic inequality, infrastructure, migration, and institutional factors, and provides an overview of the social and environmental impacts that could result from large-scale green hydrogen projects in the region.

There are social, institutional and economic risks associated with these projects, but with adequate effort and collaborative action, many of the potential risks can be overcome, with the requisite research skills and robust institutions.

In this chapter, the term "Namakwa" refers to the Namakwa District Municipality, a political jurisdiction. Interestingly, Namakwa DM includes areas such as Pofadder and Aggeneys, which are actually within the historical "Bushmanland" area to the east of Namaqualand, as typically understood. In this chapter, the term "Namaqualand" refers to a broader historical region, which may include areas in the Western Cape. "Namaqualand" was never clearly defined in the past; it generally refers to the arid western areas, where deserts and spring-time indigenous flowers can be found, and where the Nama people originated historically.

Since the demarcation of municipalities in 1996, statistics are provided on the basis of municipalities, and hence this would be the Namakwa District Municipality, and not Namaqualand as a cultural or ecological region.

7.2 APPROACH TO THE STUDY

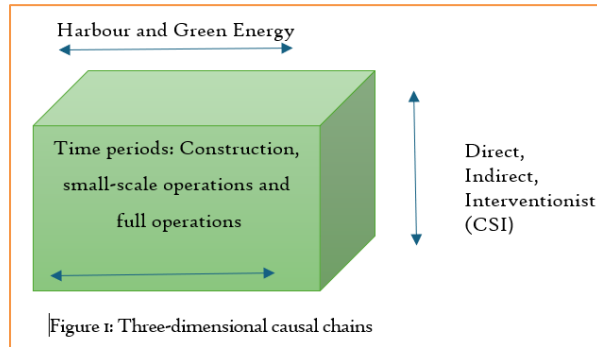
This chapter is a high-level overview of the likely impacts of the proposed Port, GH2 project and the SEZ. It is not based on original empirical work or community consultation. Instead, it relies on secondary sources, drawn from South Africa and internationally. The chapter will enable top-level decision-makers to understand overarching risks, benefits and possible lines of future enquiry. The SEA process precedes policy decision-making, inputs by interested and affected parties (EAPs), as well as Environmental Impact Studies (EIAs).

This chapter is intrinsically complex, for three main reasons:

- It combines **three different types of investment**: (a) A harbour, (b) a Green Hydrogen production facility, also associated with Wind and Solar energy generation, and (c) the Strategic Economic Zone (SEZ), which is anchored in the zinc mine near Aggeneys and the transport corridor to Boegoebaai.
- The **time period** covers at least 25 years, with three distinct phases: (a) Construction, (b) early operations of the Port and the GH2 project (both relatively small), and (c) later operations of these projects (at maximum scale). In the case of Green Hydrogen, it is not clear at this stage whether the small-scale level of operations continue into the long-term, or whether it will scale up to a maximum-level.
- There are **three distinct types of impacts** on the economic and social landscape of the receiving environment: (a) Direct impacts, caused by the direct construction and operations activities; including positive impacts, such as economic multipliers, and potentially negative impacts; (b) Indirect impacts, where chains of causality are longer and more complex; and (c) Interventionist impacts, such as Corporate Social Investment (CSI).

This therefore creates a Rubik's cube of potential impacts

There will be a myriad types of interactions, including a whole range of positive or negative unintended or unanticipated consequences. This chapter therefore offers fairly abstract or stylized factors which may function as the main channels of causality, but likely to have many subsidiary spin-offs.



For this chapter, the goals are:

- (a) *Assess the social sensitivity of local and regional receiving environments:* This is done in terms of the tourism (the most significant growth sector of the region), agriculture and mining sectors, as well as social development and cohesion.
- (b) *Classify spatial regions, based on multiple criteria, as being more, or less, suitable for future development:* The study focuses on the Richtersveld jurisdiction, the Nama Khoi jurisdiction, the Khai-Ma jurisdiction, and the Kamiesberg jurisdiction, in that order of priority. Richtersveld will host the actual projects, and will be most affected; Springbok will become a key economic hub in the region; Pofadder will be the key town on the SEZ corridor; and Garies (and surrounding towns) are likely to become the main tourist hubs. In all these cases, there will be pressures on transport routes, used by project-based trucks, local residents and tourists; in Richtersveld itself, urban development and housing provision will be crucial, and several infrastructural designs will need to take cognizance of those imperatives.
- (c) *Identify strategic-level constraints, opportunities, cumulative impacts, and strategic management actions:* These will be related to spatial planning, institutional support for municipalities, CSI activities, and significantly, public engagement systems.
- (d) *Provide an integrated decision-making framework and suite of tools, to guide project developers, practitioners, and policymakers:* We provide three consultative approaches (PDIA or Problem-driven Iterative Adaptation; FPIC, or Free, Prior and Informed Consent; and a “Green Hydrogen toolbox”) which have been developed in other localities and sectors.

The financial sustainability of the GH2 project and Port are not addressed directly in this chapter, as they depend on numerous unknowns at this stage. The financial viability of the projects will be determined by investors. If the market conditions are not positive, then investment simply won't happen. However, there are two limits to this argument. Firstly, if the projects have a borderline level of profitability, the aspirant investors may be unwilling to spend significant amounts of money on corporate social responsibility, local empowerment, and training. National government may then decide not to proceed with the projects, since they would have insufficient benefits for the local and regional communities. Secondly, if the project started out as profitable, and then market conditions changed rapidly and unexpectedly, and the projects were to grind to a halt, then significant numbers of people would be left stranded in the Namakwa area. It will be up to National Government policy makers (e.g. DTI, Treasury, Energy) to determine the financial robustness of different bidders' proposals. The National Government will need to determine its own risk appetite on this far-reaching project. It should be remembered that, if the projects fail the test of time, and cease operations, that all three spheres of government will need to contribute to the costs of local upheaval, uncertainty and losses.²

² This point was included as a response to peer reviewers.

7.3 THE LIKELY IMPACTS OF PORT AND GREEN HYDROGEN PROJECTS

The latter sections of the report will focus on generic themes (economic sectors, social cohesion and institutional design). This section will focus on the proposed Port, GH2 and SEZ initiatives, based on the literature that was developed specifically for these types of investments. Many of the observations in this section will be echoed in the later sections, when a broader context of the “receiving environment” is provided.

The proposed Port and GH2 projects at Boegoebaai fit into at least seven of the Strategic Infrastructure Projects (SIPs), as identified in the *National Infrastructure Plan 2050* (adjusted in 2022):³

- SIP 5: Saldanha-Northern Cape development corridor: Integrated rail and port expansion, Back-of-Port industrial capacity (including an IDZ), Strengthening maritime support capacity for oil and gas along the African west coast; expansion of iron ore mining production and beneficiation.
- SIP 8: Support green energy initiatives
- SIP 10: Electricity transmission and distribution; provide access to electricity for all, and support economic development.
- SIP 15: Expanding access to communication technology, extend fibre networks, promote e-government, school and health connectivity
- SIP 17: Regional integration and African co-operation, such as Vioolsdrift Dam on the Orange River, to supply water to the district
- SIP 21: Transport: Road upgrading, small harbours development, Boegoebaai Port and Rail Infrastructure Project. Boegoebaai and the maritime economy is also mentioned in the Industrial Policy Action Plan (IPAP, 2019-2021).

Advanced manufacturing, Green Industries, Rail Transport, and Boatbuilding are also mentioned in the Integrated National Export Strategy (INES) 2030.⁴ The proposed Boegoebaai projects are therefore embedded in several top-level Government planning scenarios. This is simultaneously a good thing, as it may then muster the financial and regulatory support required to make a success of it; but it is potentially also a bad thing, as it seems to present local communities with a *fait accompli*, which is difficult to challenge, and which may lead to resistance and resentment. The final section of our report makes proposals for managing this conundrum.

7.3.1 The Port

The Boegoebaai port will be aimed at imports and exports (not passenger traffic), with dry and liquid bulk berths, and multi-purpose terminals. It is unlikely to develop into a “port city” in any real sense of the word, as its main purpose will remain transport (and not broader manufacturing or commerce). It is likely to remain a dedicated bulk transit facility, although complemented by the Green Hydrogen production complex.⁵

Ports typically stimulate regional socio-economic development, which is therefore a key motivator of the Northern Cape’s business case for Boegoebaai harbour.⁶ This includes creating employment opportunities for people in the Richtersveld jurisdiction, the Namaqualand region, and the province at large. Local economic development can be promoted in strategic towns such as Alexander Bay, which is currently on the verge of closing down completely. The Port will stimulate markets, suppliers, SOEs, and business-related service providers. It will also build skills in the Northern Cape.

³ Richtersveld LM, *Spatial Development Framework*, 2024, p. 36.

⁴ Richtersveld LM, *Spatial Development Framework*, 2024, p. 38.

⁵ However, nothing is cast in stone; in thirty years’ time, the local multipliers and technical innovations may indeed lead to the creation of a “port city”.

⁶ Northern Cape, *Boegoebaai Port Business Case*, 2020, p. 30.

7.3.1.1 Regional impacts

The primary purpose of the Boegoebaai Port is a “Pit-to-Port” supply chain project, for export of inland resources and import of a single commodity (diesel). This is an example of the recent rise of seaport terminals that primarily act as transshipment hubs in extensive maritime hub-and-spoke and collection and distribution networks. Increased cargo availability has triggered changes in vessel size and the structure of liner shipping. The new types of port terminals serve large areas or subcontinents, and for trans-shipping at the crossing points of trade lanes. Many of these ports specialise in one function.⁷

Regional impacts of Ports will be felt at the locality level as well as other localities situated further afield. Near the port itself, firms may locate close to the port because they want to benefit from relatively low transportation costs for bulk commodities close to the port. Other firms may consider the agglomeration of firms supplying goods and services to the port as beneficial for their activities, and may therefore locate close to the port. Such agglomeration trends may attract even further rounds of business investment.⁸

Over time, a much larger “region” of influence will develop, with the port and the main product sending areas (Aggeneys, Kathu, Kuruman, Postmasburg) as the extreme poles. Each of these poles are likely to experience additional investments, as the port’s beneficial impacts become felt. The delivery routes (train or truck) slowly build points of additional economic concentration along these routes.⁹ This creates new forces promoting regionalization, beyond a focus on the port itself, favouring the emergence of transport corridors and logistics ports. This trend will be strongly emphasised by the SEZ at Aggeneys, situated on or near the main transport routes which link the ore fields with the Boegoebaai port.

The lifetime of the mines in Postmasburg and Kalahari appear to be about 30 years, which could be affected in future by market forces. This could impact the long-term viability of the Port.

7.3.1.2 Land ownership and land value

The land earmarked for the Boegoebaai Harbour is owned by the Richtersveld Sida !Hub Communal Property Association (CPA), following a successful land claim. The land is currently used by Alexkor for diamond exploration, in a pooling and sharing joint venture (PSJV) with the Richtersveld Mining Company.

Many ports are constrained by the lack of available land for expansion.¹⁰ The Boegoebaai port will have the advantage of a large area of usable land. The Port will be constructed on undeveloped arid land with a low commercial value, and with little development in the near vicinity. However, this land is owned by the Richtersveld CPA, which will require careful negotiations to the satisfaction of all parties.

The port will increase land values, especially due to subsidiary commercial and industrial developments. The project will thus increase land value prices in the region, such as the surrounding towns of Alexander Bay, Port Nolloth and Springbok.¹¹ However, increased land prices are always a mixed blessing. While it adds capital value to existing owners, and suggests that investment is taking place for productive purposes, it can also displace local people by pushing land prices beyond their means.

7.3.1.3 Business services and multipliers

The Port will essentially stimulate the transport sector. However, it can also act as a “growth pole” for other industries, such as manufacturing, transport, and logistics.¹² This will indeed be the case if the Boegoebaai port enables the sustainability of the GH2 enterprise.

The Port will have three types of economic impacts:

⁷ Notteboom and Rodrigue, 2005, Port Regionalisation.

⁸ Kaufman, *Impact of Ports*, p. 9.

⁹ Notteboom and Rodrigue, Port Regionalisation (2005).

¹⁰ Notteboom and Rodrigue, Port Regionalisation, *Source?*, p. 3.

¹¹ Northern Cape, *Boegoebaai Port Business Case*, 2020, p. 209.

¹² Benacchio and Musso, Ports and Economic impact: *Transporti Europei*, 2001, p. 33.

- **Direct effects:** An increase in job creation, GDP, production, business sales and household income associated with the operations of the port itself;
- **Indirect effects:** Suppliers of goods and services to the new port experience a larger demand, and can expand; this promotes job creation, GDP and household income; and
- **Induced economic effects:** Shifts in spending on food, clothing, housing and other consumer goods and services due to wages in both directly and indirectly affected businesses. This leads to further business growth throughout the economy.

These economic impacts may have complex and possibly destabilising impacts on local communities. Furthermore, the Northern Cape economy is underdeveloped, and impacts in such a context may well be weaker than in a more developed economy. Where services and goods are not available locally, they would have to be shipped in; and there may be barriers to local businesses and workers finding niches in the new Port economy. It is difficult to find studies of similar cases internationally. As a general rule of thumb, the Port authorities should be maximally aware and willing to take innovative steps to bring local economic actors on board.

A large array of specialised categories of service providers will need to service the port, ranging from direct port operators and service activities for shipping agencies to services catering for the needs of crews, government activities in relation to the port, and construction activities. Port operations include freight management (including container repair, freight planning, and cleaning services); freight owners (for mineral and agricultural exporters); transport service providers (mainly by road); and terminal facilities.¹³ The agglomeration effects mentioned earlier will stimulate even more diverse business operations.

These chains of business volume increases are called multiplier effects. Multipliers can be triggered by the expenditure of wages, or by port-related businesses, or by the re-spending of tax-payments by various government agencies.¹⁴ The economic effects created by the core function of the port will stimulate *Backward Linkages* (port agencies use goods and services from subcontractors who need other subcontractors). The ratio between backward linkages and the original direct effects is called the “*backward multiplier*”. In contrast, the *Forward Linkages* are activities stimulated by the presence of the port. They benefit by having an export facility, e.g. nearby agricultural enterprises, or manufacturers who want to export their goods through the port. The port may also stimulate port tourism and other non-marine economic development, such as real estate agencies. This can provide a significant link with enterprises within the local community.

There is possibly a danger of overstating multiplier effects related to the Port. The Port will not be a “port city”, in the classical sense. It will be a dedicated transport facility (combined with GH2 industries), with little chance of becoming a diversified port city. As ports go, it will be largely capital-intensive, focused on the export and import of bulk consumer goods. Given the very low level of development of the Richtersveld and Namaqualand regions, and the highly specific nature of the port itself, the multiplier effects are likely to be much more muted than in a more diverse area such as a typical coastal city. Furthermore, the place of origin of the exported commodities is located far away (the manganese and iron ore fields), which will bring many of the benefits of cost-effective exports to those enterprises and communities.¹⁵

Nonetheless, over time, the benefits of forward and backward linkages may well bring a trend towards agglomeration at Boegoebaai, which will diversify the business services at the site. This is such a novel project that the agglomeration, multiplier and diversification impacts are actually difficult to tell. Government support programmes can improve the prospects of subsidiary businesses. Probably the single greatest causal factor will be the Port’s operators’ decision regarding the diversity of products to be handled by the Port, as explained in the following section.

¹³ Northern Cape, *Boegoebaai Port Business Case*, 2020, p. 42.

¹⁴ Kaufman, *Impact of Ports*, p. 10.

¹⁵ Benacchio, and Musso, *Ports and Economic impact*, *Transporti Europei*, 2001.

7.3.1.4 Employment

A large share of the jobs, particularly during the Construction phase, will be unskilled and semi-skilled work, ranging from breakwaters, dredging, roads, and rail infrastructure, which are all labour-intensive.

The construction of the port itself is estimated to create a large number of indirect and induced jobs, in addition to the direct jobs that will be created. The port construction can proceed rapidly, unlike the Green Hydrogen industry which will require a great deal of new technology. In the table below, about 7 190 direct jobs will be created in a five-year period (2026-2031). It will stimulate the local, regional and national economy by creating 4 400 indirect jobs (i.e. stimulated in goods and services provided to the port project). In addition, there are likely to be about 16 200 “induced jobs”, in industries stimulated by the port:¹⁶

- **Job creation during Port construction** is estimated as 7 190 direct jobs, 4400 indirect jobs, and 16 200 induced jobs, adding to a total of 27 790 over a five-year period.
- **Job creation during Port operations** is estimated as 420 direct jobs, 586 indirect jobs and 2 350 induced jobs, adding to a total of 3356 over a five-year period.¹⁷ This shows a significant slow-down in employment as the construction phase ends. In effect, the construction phase is likely to cause a “boom-town” effect, which will be explored more fully below.

This may also provide a window of opportunity for local people to enter targeted training programmes, to enable career-pathing. The new job market may also create scope for skilled Namaqualanders, who have left the area in search of better jobs, to return to their region of origin. It is not clear how such jobs would be distributed between men and women, or to youth or people with disabilities. This would depend on proactive management policies.

Total worker income is likely to be around R4.4 billion during the operational phase, which will stimulate local consumer sectors, transport and construction. This is a massive injection into the economy of the Richtersveld, since many local people will find skilled and semi-skilled employment.¹⁸

The financial impact of the port itself during the construction period will be massive, in terms of total worker income, at about R4,4 billion. However, during the operational phase, worker income will reduce significantly to R0,5 billion.

However, over time, the Port is expected to create jobs and promote economic growth in all sectors of the local economy, and specifically in manufacturing, transport, warehousing and tourism. The Transnet study (2024) expects that development contractors will typically have a core team, often recruited outside Namaqualand, and that most of the construction workers will be sourced local and regionally. For maritime jobs, local people may be trained by the TNPA.¹⁹ The Port will, indirectly, stimulate commercial and financial services, including financial institutions, security services, accommodation, retail, restaurants, health and medical services.

¹⁶ Transnet, Boegoebaai Port Development Social-Economic Benefit Report, 2024, p. 17.

¹⁷ Jobs would be created in various activities: Handling and berthing of ships; loading and offloading of containers, bulk minerals and liquid fuels, warehousing (including specialised types such as refrigerated, high security, liquid/bulk handling, and storage), general warehousing, road delivery and pickups, shipping line container parks, and specialised services such as export packing. Employment will be created across all levels of skill: General labour (unskilled); drivers, trade hands, motormen, shorehands; tug operations, coxwains, ship steering, seamen, cargo co-ordinators, gantry crane operators, administrative staff, security officers, plumbers, facilities managers, technical officers; occupational health staff; electricians and maintenance personnel; human resources staff; master pilots; senior accountants; harbour master; port manager; port engineer; and information technology. In addition, value-added logistics services will include quality control, packing, goods inspection, insurance, truck stops, parking or staging areas, vehicle maintenance, weighbridges, container maintenance, fuel supply, information and communication. Northern Cape, *Boegoebaai Port Business Case*, 2020.

¹⁸ Transnet, Boegoebaai Port Development Social-Economic Benefit Report, 2024,, p. 16.

¹⁹ Transnet, 2024, Boegoebaai Port Development SEB report, p. 21.

In addition, there will be jobs created from transportation of commodities. In the early phase (construction), new jobs are estimated between 2 200 and 3 140. By 2050, this is slightly reduced, to between 2 080 and 2 940.²⁰ (“Jobs” are defined in the Transnet analysis as “workers/employees on-site at any given time”).

Ongoing road upgrades and maintenance on the N14, N7 and particularly the R382, will be required, particularly in the light of damages caused by heavily-laden ore trucks.²¹ These jobs have not been calculated yet. The fact that current roads were not constructed with such heavy transit in mind, will require sections of the roads to be re-built to different standards.

This makes a strong argument for investment in rail transport of minerals *ab initio*. Furthermore, the European Union’s Carbon Border Adjustment Mechanism (CBAM) involves the imposition of a carbon tariff on imported goods, based on the level of embedded emissions in the goods and the carbon price paid by the manufacturers thereof in the country of origin.²² This means that rail transport will be much more sustainable and internationally acceptable than diesel-fueled road transport.

In particular, the transport of lead and zinc will potentially benefit Namaqualand work-seekers. In the Lead and Zinc sector, around 80 workers will be employed in the short and longer term.

The Transnet report maintains that transport of copper will dwindle from about 40 people in the near term (before 2030), and will phase out completely by 2050. This conclusion should be reconsidered. However, the demand for copper (and its price) is likely to increase in the medium-term, copper-intensive technologies will become more prevalent, including wind turbines, solar panels, electric vehicles and expansion of AI computing centres²³ There are new mining operations in Namaqualand (companies such as Copper 360), and the proposed Port will presumably be a good export site.

The transport of Diesel will create a significant number of jobs (around 230-340 in the short term and 300-400 in the long term), but these are long inter-regional transport systems, which will only partially affect people based in Namaqualand.²⁴

This suggests that total employment (*Port and transport*), related to the Port and to transport of commodities, is likely to be:²⁵

- **During construction phase (2028):** Between 7 820 and 10 860 jobs (production and transportation)
- **During operations phase (2050):** Between 10 890 and 15 740 jobs.

These jobs are likely to be better paid than current Namaqualand levels. This represents a major injection of revenue into the Namaqualand consumer markets, which will then, inevitably, have multiplier effects in the region. However, the exact availability and uptake of such jobs by local people will remain somewhat indeterminate until the project is rolled out. Stakeholder preferences are likely to be complex, and may change over time. The local (“receiving”) community is definitely not homogenous in terms of interests and capacities.

As far as impact on mining is concerned, is concerned, the Transnet study of socio-economic benefits (2024) pointed out anticipated mining employment in various sectors benefiting from the Boegoebaai harbour. Over time, a growing number of jobs will materialise at the Vedanta zinc operations near Aggeneys; this is calculated at 200-250 jobs in the near term, and 150-200 jobs by 2050.²⁶

²⁰ This includes manganese, lead/zinc, magnetite, ilmenite, copper, diesel, green hydrogen products, and containers of mixed goods. Transnet, *Boegoebaai Port Development Social-Economic Benefit Report*, 2024, p. 37.

²¹ Northern Cape, *Boegoebaai Port Business Case*, 2020, p. 98.

²² <https://saiia.org.za/research/understanding-the-carbon-border-adjustment-mechanism-cbam/>

²³ Soares, AF, Spers, RG, and Jhunior, ROS, Projection of global copper demand in the context of energy transition, *Resources Policy*, vol. 103, April 2025. <https://doi.org/10.1016/j.resourpol.2025.105567>

²⁴ Transnet, *Boegoebaai Port Development Social-Economic Benefit Report*, 2024, p. 37.

²⁵ Based on figures in Transnet, *Boegoebaai Port Development SEB Report*, 2024, p. 36.

²⁶ Manganese mining is the largest industry to benefit from mining jobs stimulated. However, it falls just outside the Namakwa region. The benefits of the high levels of wages (between 4 700 and 6 300 for the foreseeable future) will

As regards the Namaqualand region, copper production is likely to employ between 50 and 70 people in the short term (before 2030), but by 2050, those jobs would have fallen away²⁷. Lead and Zinc production, from the Vedanta operations, will be about 2 000 in the short and long term. Green Hydrogen production will employ between 100 and 250 people before 2030, but will escalate massively towards 2050, when between 3 750 and 6 000 people will be employed.²⁸

7.3.1.5 Proposed Transnet CSI programme

The Transnet Port report has identified the following key issue areas for CSI interventions:²⁹ Education and training, enterprise development, environmental management, socio-economic and infrastructure development, HIV/AIDS and health care, sports development, and employee volunteering in various projects.

The implementing agency will be the Transnet Foundation, the CSI arm of the Transnet Company. It has several transversal goals:

- Improving communities' access to quality healthcare
- Improve academic outcomes and enable access to meaningful economic opportunities
- Prevent GBV and strengthen community well-being
- Enabling socio-economic transformation by building individuals' capacity, promote community development, and improve livelihoods
- Harnessing the diverse and broad skills and experience of Transnet's workforce for volunteerism initiatives.

All the Transnet CSI programmes will have clear exit plans in place, and will not lead to long-term dependencies.³⁰

7.3.1.6 Transport

The Northern Cape mining region will serve as the hinterland for the first phase of Boegoebaai Port. Because of the small size of the Port, it was assumed that a dedicated rail link will not be financially feasible. Hence transport logistics will depend on the use of road vehicles. This will also lead to re-routing some commodities from the distant ports of Saldanha, Cape Town, Durban and Port Elizabeth.³¹ Agriculture would only be 1.8% of total commodities shipped.

Boegoebaai will aim to take the smaller minerals (lead, zinc and manganese) from the Sishen-Saldanha line/ This will also benefit the Zinc smelter refinery at Aggeneys. For the foreseeable future, trucks will be used to transport ore to Boegoebaai. This will open up rail transit for more ore to go directly to Saldanha. However, it will bring externality costs for the roads (and communities) in the Boegoebaai area, due to wear and tear of the roads, traffic congestion, and possible traffic accidents. However, this will be made up in benefits flowing from increased trucking jobs, time savings for ore companies in lower inventory holding costs, and

be felt mainly in Postmasburg, Kuruman and Kathu. Transnet, 2024, *Boegoebaai Port Development SEB report*, p. 36.

²⁷ According to the Transnet report. Given the likely increase in demand for copper, this assertion needs to be clarified.

²⁸ Transnet, 2024, Boegoebaai Port Development, SEB report, p. 36.

²⁹ Transnet, 2024, Boegoebaai Port Development, SEB report, p. 72.

³⁰ Preference will be given to non-profit, registered, voluntary and community-based organisations, as well as faith-based organisations, that are well-administered and financially stable. They should have a track record of meeting their stated goals; demonstrate broad community support and involvement; include marginalised groups (such as people living with HIV, youth, women, children, aged, and people with disabilities). They should promote gender equity, and at least 30% of beneficiary support should be women.

³¹ Northern Cape, *Boegoebaai Port Business Case*, 2020, p. 53.

most notably increased consumer surplus from increased export capacity. The Boegoeberg Port business case argues that this “more than justifies the economic costs incurred.”³²

For the “Low Case” business option, the main focus would be on manganese exports, general cargo, iron ore, and diesel imports.³³ For the “High case”, manganese will make up two thirds of shipping. In roughly equal measure, iron ore, diesel imports and general cargo would both be about 7-8%, while agriculture would be at 4.8%.

The agricultural and general cargo numbers were capped due to port capacity, and planned to be phased out at a later stage.³⁴ This suggestion raises concern, as the port could play a major role in the fortunes of intensive irrigation agricultural schemes in the region. The growing commercial footprint of the region, and the likelihood of further industrialisation of towns such as Springbok, would make an argument for keeping a diversified port. There are significant benefits to be realised from port flexibility and ability to handle a wide range of cargoes, as a general port with a number of different terminals.

The usual arguments for diversification of commodities and inputs will be relevant to bolster the case for continuing a diversified cargo mix, as it will help to reduce dependence on specific commodities and their product or price cycles. The danger is that a sudden reduction in the Port’s exports or imports, due to an exogenous “shock” or a decrease in port activities, will have a massive disruptive loss in direct employment.³⁵ This will have negative multiplier effects throughout the whole region.

7.3.1.7 Community engagement

“Equator principles” are a set of voluntary guidelines adopted by private financial institutions to ensure that large development or construction projects appropriately consider the associated potential impacts on affected communities and the natural environment.³⁶

The public participation processes involving stakeholders, and particularly the Richtersveld CPA, need to be robust. Their acceptance of the proposed project will serve as the “social licence” to proceed. The purchase or lease of land for the Port will have to be approved by a majority of members of the CPA.³⁷

Port authorities need to cultivate an open and inclusive style of governance, building trusting relationships with surrounding communities: “Port Authorities have to ideally play as ‘chairmen’ in the roundtables of the decision-making process regarding port planning and development. The meaningful involvement of local communities (which ... are among the weaker parts of the port stakeholders) should be considered an important target, in order also to gain ... legitimacy of governmental institutions, ... which quite often is questioned. Since critical inputs of ports’ production functions are supplied from local systems (natural resources, labour and infrastructure), it is therefore a main point that local communities take part in port decisions”.³⁸

The Port Business case emphasised the importance of engaging with the Richtersveld CPA and community, (a) to understand and address the community’s demands timeously, and (b) to control the information relayed to the community regarding the project proposal. The community should be meaningfully engaged regarding the project proposal, thereby creating a meaningful relationship.³⁹ Community participation proposals for the future are examined in more detail in the final section.

7.3.2 Green hydrogen (GH2)

The South African Green Hydrogen business case depends on the abundance of solar and wind resources, as well as key metals and minerals. South Africa already has access to the proprietary Fischer-Tropsch

³² Northern Cape, *Boegoebaai Port Business Case*, 2020, p. 214.

³³ Northern Cape, *Boegoebaai Port Business Case*, 2020, p. 55.

³⁴ Northern Cape, *Boegoebaai Port Business Case*, 2020, p. 57.

³⁵ Benacchio and Musso, Ports and Economic impact: *Transporti Europei*, 2001, p. 29.

³⁶ Northern Cape, *Boegoebaai Port Business Case*, 2020, p. 136.

³⁷ Northern Cape, *Boegoebaai Port Business Case*, 2020, p. 142.

³⁸ Benacchio, and Musso, Ports and Economic impact, *Transporti Europei*, 2001, p. 35.

³⁹ Northern Cape, *Boegoebaai Port Business Case*, 2020, p. 154.

technology developed by SASOL, which is a key advantage. This country has abundant platinum group minerals, a robust financial system, a fairly diverse manufacturing sector, and a large renewable energy programme.

The entire project would include:⁴⁰ (a) An electrolyser park, with an anchor investor selected in a bidding process, to construct the facilities at the port; (b) desalination plant; (c) liquid storage facility for green hydrogen and green ammonia, to load export vessels; (d) solar, wind and battery park, and potentially also the production of manganese-based precursor materials for the production of lithium-iron batteries, leveraging on the nearby manganese mines; (e) supplier park for key common components; (f) a “gigafactory” to ramp up the production of electrolysers, using South African intellectual property and expertise.

South Africa does not have much existing gas infrastructure to repurpose, so that many new investments will need to be made. Given long approval times, this may take a significant time period.

At a national scale, the advantages will be:⁴¹

- Supporting the entire GH2 value chain by manufacturing key inputs for production and use, such as electrolysers and fuel cells (forward linkages), as well as transportation infrastructure such as pipelines and equipment (backward linkages), and use in other sectors, such as agriculture, explosives and steelmaking (production of green fertilizers, explosives and steel)
- The workforce can be pivoted away from fossil-intensive resources towards the GH2 value chain, and thereby promote the Just Transition process, with particular focus on vulnerable groups such as technical and vocational workers, coal miners and surrounding communities, particularly by means of skills transfer and training
- It can support catalytic infrastructure projects, such as the Boegoebaai harbour, which will give the Port a national significance ⁴²
- Where renewable energy plants are built to support GH2 projects (as in Boegoebaai), those projects can also supply energy into the national grid.
- Co-located production projects, as in mine-haul vehicles in the mineral sector, will have accelerated commercial value due to lower infrastructure and supply chain dependencies, and hence lower cost. This, in turn, will mean that the mining suppliers for the Boegoebaai Port will also benefit from GH2 in their onsite mining operations.
- The DTIC study notes that, to achieve ambitious domestic demand larger than 3mta will require “supportive policies and incentives”.

The likely timeline for Green Hydrogen “use case pathways” is as follows:

- In the short term (less than 5 years): Transportation of liquid fuels (by truck)
- In the short to medium term (5-10 years): Pipelines to be built
- In the short term: Energy provision to the grid for grid balancing and short term; this relies on adequate renewable energy being available.

Given the delays in gearing up the industry and the regulatory environment, these time frames should probably be lengthened considerably.

⁴⁰ DSI, Hydrogen Society Roadmap for South Africa, 2021, p. 63.

⁴¹ DTIC, Green Hydrogen Commercialisation Strategy, 2023, p. 11.

⁴² DTIC, Green Hydrogen Commercialisation Strategy, 2023, p. 112.

The Boegoebaai GH2 project will be led by SASOL. It will occupy 60 000 hectares of land adjacent to the SEZ plant, including the production of green hydrogen and green ammonia. It has the potential to create up to 400 000 tons of green hydrogen per annum. This will position South Africa as a global leader in the green hydrogen economy.⁴³

There is an inherent uncertainty in international energy markets. However, there is broadly an international interest in energy diversification, spurred spectacularly by the Iranian war. Research on hydrogen technologies is widespread and ongoing (including in South Africa), and it is likely that this production sector will continue to grow, possibly at an exponential pace. There is general agreement that non-fossil forms of energy are on an upward trajectory over the long term. However, there may be fluctuations in the short term. The proposal to develop a Port alongside the Green Hydrogen project would help to reduce vulnerability to market fluctuations, in hydrogen and minerals markets. As always, a global economic collapse remains a risk, due to unforeseen economic or political events.

At this stage, Government is awaiting the SEA in order to make the policy decision whether to proceed with Boegoebaai or not; and this decision will entail a wide range of variables which cannot be assessed at this stage. Only once the opportunities are advertised to secure investment partners, will the project parameters become clear - in the light of the fact that different investor applications will make different project proposals. Another set of variables will affect the potential construction of the port, which will include matters such as mineral exports (markets and prices), potential private sector rail investors, and potential private sector harbour investors. The two sectors (hydrogen and port) may entail different sets of investors, which would then have to be synchronised into one project location. One cannot speculate about these markets at this stage.

With any capital projects, there is a risk that they eventually prove unviable, due to unanticipated factors. They may also not be profitable initially, and then gradually gain traction. The best one can assess, at this stage, is that international energy and mineral markets (particularly iron, manganese, copper and zinc) are likely to grow in future, in the light of factors such as AI, increased defence expenditure, and technologies to mitigate climate change.⁴⁴

The economic business case for GH2, combined with renewable energy at Boegoebaai, will have direct beneficial spin-offs for Namaqualand district as well as the Northern Cape generally. The following sections provide a summary of likely impacts, drawn from South African and international studies.

7.3.2.1 Employment

There is some scepticism about the likely job creation effects of the GH2 initiative, and that only a small segment of the local population may benefit.⁴⁵ The fear has been expressed that the focus on 'skilled' labour automatically excludes the majority of residents in the Namakwa District, who lack the necessary qualifications. This concern highlights the risk that local communities may not fully capitalise on the economic opportunities presented by these large-scale renewable energy projects, at least not in the short term. A great deal depends on the window of time, and the use of such available window, for companies to create effective training or re-training opportunities for local people, so that they are able to compete for jobs. A skilling strategy would need to be launched very early in the process.

NCDCA anticipates that the first phase of the GH2 project (roughly 10 years) will attract 75 000 workers, in various skills categories:⁴⁶ Unskilled labourers (30%), Semi-skilled artisans (20%), Skilled professionals and engineers (10%), skilled artisans (20%), skilled management (20%).

⁴³ DSI, Hydrogen Society Roadmap for South Africa, 2021, p. 64.

⁴⁴ This point was added in response to public reviewer comments.

⁴⁵ Hendriks, U. 2022. Some Northern Cape coastal communities oppose multi-billion-rand development projects.

⁴⁶ Cited in Nzo, T., Mahabir, J., 2023. Inclusive and decentralized renewable energy development.

7.3.2.2 Transport

GH2 production can support other catalytic projects, as in the case of Boegoebaai Port, making GH2 and port activities more profitable and sustainable. Locating the GH2 complex at the Port means that it can be geared directly for export in the short term, to areas in the world (such as Europe) where demand opportunities are immediate. The port component of the project concept strengthens the overall business case of GH2 at Boegoebaai. Reciprocally, this strengthens the business case for the port, which in turn can benefit ore and agricultural exports. Additional infrastructure projects will include e-methanol and pipeline infrastructure.

Once a railway line is built, this will create additional jobs at strategic points along the route. However, new railways and roads may well be an obstacle for pastoral farmers moving their livestock, and this will have to be taken into account during route planning.

7.3.2.3 Energy sector

The GH2 complex will entail large-scale renewable electricity expansion in the Namaqualand area, based on the supply to the grid, thereby creating cheaper and more reliable access to electricity in Namaqualand. The planned renewable energy expansion will utilise 240 000 hectares of community-owned land for renewable energy, to support the Green Hydrogen project. The project will require 9GW of renewable energy to do so – about 20% of South Africa’s current installed renewable energy capacity. The 30GW wind farm will contribute to reaching this target.⁴⁷ The details of such land rental arrangements still need to be clarified, but generally, land-owners (such as the CPAs) are likely to benefit from rental income.

For very remote communities, local solar plants can be combined with hydrogen cells, which supplement energy supply when solar power is unavailable. This would mean that they would not be dependent on long-distance power lines, which require high maintenance, and are unsightly and therefore interfere with tourism “viewsheds”.⁴⁸

7.3.2.4 Manufacturing investment

The Boegoebaai SEZ will be an important framework to attract industries that would benefit from GH2 production (backward and forward linkages). In the longer term, industry players can congregate near GH2 production projects to provide inputs and equipment, or to utilise the GH2 itself in production processes; in particular, electricity grid and associated infrastructure, compression and storage equipment, beneficiated products, and logistics. This will strengthen the agglomeration trends mentioned earlier, in relation to the Boegoebaai Port.

Many of these subsidiary industries may benefit from national-level incentives related to green energy, such as credit enhancements, employment incentives, tax breaks and subsidies (e.g. from the IDC), which will therefore benefit investment multipliers in the Namaqualand. Appropriate use of government subsidies will speed up the transition to the hydrogen economy.⁴⁹

However, these benefits will depend on Government streamlining processes of permitting, licencing and authorisation. These approval processes in South Africa are very lengthy, often hindering the implementation of projects. There is a need for a single “one-stop” system to simplify these processes.⁵⁰

To promote the inclusion of local businesses (whether manufacturing, retail or service provision) in the new Green Hydrogen sector, accessible and supportive online portals and help desks should be provided, to ease difficulties of tendering.

⁴⁷ DSI, Hydrogen Society Roadmap for South Africa, 2021, p. 64.

⁴⁸ https://www.solarwa.org/hydrogen_energy_storage_a_green_alternative_to_batteries

⁴⁹ Tetteh, EK et al, Non-carbonaceous and renewable-powered technologies, 2024, p. 13.

⁵⁰ Pinto and Chege, Regulating Green and Low-Carbon Hydrogen in Africa, 2024, p. 20.

7.3.2.5 Skills development

The NCEDA business case for Green Hydrogen notes that the Northern Cape Government will extend and deepen access to quality education, STEM education in the basic education system, technical education in schools, graduate development and research support. This approach will encompass work skills programmes, including a TVET-to-work transition programme, vocational skills, and SME development support.⁵¹

Employment and skills training should be promoted at all levels of the GH2 investment, as well as enterprises in the GH2 value chain and related transport services. The TVET college in Springbok can be expanded, and satellite campuses established at Port Nolloth and/or Alexander Bay. SETA funding will be available for training programmes. Relevant skills (ranging from technical training to graduates) will include operations, maintenance, transportation, construction, industrial manufacturing, and energy systems.

The TVET system requires an intersection with the higher education system and the skills development system, to promote access to workplace-based training as well as progression pathways to higher education.⁵² There should be synergy between TVET training and later on-the-job training. Several problems with the current TVET system have been identified.⁵³

A key shortage in South Africa is training for intermediate or medium-skilled occupations (NQF levels 4-5, equivalent to a matric certificate) that are appropriate for the green economy.⁵⁴ The demand of Green Hydrogen plants in the vicinity of Boegoebaai is likely to put upward pressure on demand for such skilled people. Currently, the labour force still remains predominantly low-skilled. The Centres of Specialisation (COS) Programme was launched by Government in 2019, to transform TVET colleges to work closer with industry, and implement a demand-led approach to skills through a dual apprenticeship model. Lecturers should also receive continuing on-the-job exposure to new technologies. Life-learning is becoming the norm. TVET centres should be located in close proximity to the areas of industry demand. In the case of Boegoebaai, it suggests that a TVET branch college should be located in Port Nolloth or Alexander Bay.

The Green Hydrogen Energy TVET Skills Just Transition should provide new, high-quality green jobs in the generation and storage of hydrogen, manufacturing of hydrogen-related products such as fuel cells and electrolyzers, beneficiation of minerals, and export of green hydrogen. There will also be jobs in the local manufacture of hydrogen-related products, infrastructure construction, specialised forms of transport, occupational health and safety, disaster management, digital and ICT skills.⁵⁵

Creating a viable TVET system for an industry has a long lead time, estimated 5-10 years, to prepare lecturers, develop curricula, set up work placements, and develop a mutually supportive integrated system between training and industry. A pro-active approach to skills development is crucial.⁵⁶ The current inefficiencies and inflexibilities of the TVET system will need to be addressed in the Namaqualand context, possibly by Government and business pressure to identify possible rapid improvements and upscaling.

These recommendations are of major significance for the Boegoebaai Port as well as the GH2 complex. The need for local employment opportunities in Namaqualand is great; and the demand for skilled, trained and train-able young people will be enormous. The real challenge will be to create a pathway for school learners and school leavers into the TVET system, particularly at Springbok.

⁵¹ NCEDA 2023, Northern Cape Green Hydrogen Masterplan, p. 12.

⁵² SAIIA, The South African Green Hydrogen TVT, 2022, p. 23, 37.

⁵³ Matriculants do not have sufficiently strong technical and mathematical skills; completion rates are low; and training is poorly synchronised with workplace requirements; poor student grant administration; poor integration between occupational programmes and higher-education funded programmes; and poor gender representivity. SAIIA, *The South African Green Hydrogen TVT Ecosystem*, 2022, p. 40.

⁵⁴ SAIIA, The South African Green Hydrogen TVT Ecosystem, 2022, p. 37.

⁵⁵ SAIIA, The South African Green Hydrogen TVT Ecosystem, 2022, p. 64.

⁵⁶ There are already roles in grey hydrogen companies (SASOL, Afrox and Air Liquide) which can be used as the core of the GH2 training industry, spanning process jobs (e.g. operators, controllers, foremen), maintenance positions (machinists, welders, electricians), logistics jobs (forklift drivers, stock control) and support positions (such as lab assistants). The courses at two TVET colleges near SASOL can be extended to other colleges. SAIIA, *The South African Green Hydrogen TVT Ecosystem*, 2022, p. 99.

A TVET college in Port Nolloth will create more opportunities for aspirant technicians. However, ensuring that school leavers are ready for TVET education, and ensuring that the colleges have sufficient experienced lecturers will take a significant lead time.

7.3.2.6 Business development

The Northern Cape plans to implement four types of interventions to support local enterprise supplier development (ESD):⁵⁷

1. **Ring fence enterprises with high local availability and low technical barriers to entry:** Local preferential procurement (e.g. earth moving, fencing and solar panel maintenance)
2. **Incentivise enterprises with high local availability and high technical entry barriers:** Attract national enterprises to Boegoebaai (e.g. civil construction, hydraulic equipment)
3. **Finance enterprises with low local availability and low technical barriers to entry:** Stimulate new enterprises (e.g. platforms and forklift rental, wind tower maintenance)
4. **Incubate enterprises with low local availability and high technical barriers to entry:** Support new enterprises (e.g. desalination components, industrial batteries).

7.3.2.7 Agriculture

GH2 fuel cells can be utilised as backup systems to solar power in commercial agriculture. The production of ammonia from GH2 has multiple benefits. Green Ammonia is the only carbon-free vector that can be scaled up in an economical manner from megawatt hour to terawatt hour, using commercially available technologies. Furthermore, it can be used as both an energy carrier and fertilizer, which has implications for intensive farming. “Green ammonia has the potential to decarbonize the energy sector of Africa and enable low-cost and reliable access to fertilizers”.⁵⁸ The long history of industrial ammonia synthesis, for over a century, has led to well-established and safe protocols for production, storage and transportation, facilitating its large-scale deployment as an energy carrier.

The market for other forms of hydrogen use in agriculture is still undeveloped, and the cost-benefit calculations for various types of farmers remains unclear. Hydrogen cells would need to compete with other forms of on-farm energy, such as solar. Distribution systems would need to evolve. The use of green hydrogen in agriculture is a tantalising possibility, requiring further technical and economic research in this sector.

7.3.2.8 Urban management spin-offs

Desalination technologies for GH2 production can be expanded to provide water for small remote communities near the coastline. Desalination plants could be oversized to at least 300% of the capacity required for the electrolysis plant alone; the extra CAPEX costs could be carried by the project and built into the hydrogen price, which will not be greatly affected. The extra fresh water supply will enhance the public acceptability of green hydrogen plants. The local water utility can purchase the excess water, paying only for the electricity component, as the capital repayment costs are paid for by the hydrogen business.⁵⁹ This will significantly increase the water resilience of local municipalities such as Richtersveld LM, although the transport costs of this water supply may prove to be prohibitive.

Disaster management will be a key aspect of GH2 planning. Hydrogen is tasteless, odourless, non-metallic and highly flammable, and can act hazardously under certain conditions (temperature and pressure) or when mismanaged.⁶⁰ Technical safety standards for hydrogen must be given special consideration and priority, related to storage, handling and transport, as well as adoption of hydrogen fuel cell technology.⁶¹ This will

⁵⁷ NCEDA, 2023, Northern Cape Green Hydrogen Masterplan, p. 12.

⁵⁸ Sagel et al, Leveraging green ammonia, 2023, p. 14384.

⁵⁹ Roos and Wright, *Powerfuels and Green Hydrogen*, 2021, p. 31.

⁶⁰ Tetteh, EK et al, Non-carbonaceous and renewable-powered technologies, 2024, p. 13.

⁶¹ Pinto and Chege, Regulating Green and Low-Carbon Hydrogen in Africa, 2024, p. 21.

require a concerted initiative in collaboration with the Richtersveld LM and Namakwa DM, to increase their capabilities regarding disaster management. Additional heavy truck traffic on the roads will also require more sophisticated disaster management, including dealing with hazardous materials.

7.3.2.9 Governance

In addition to national-level partnerships between Government, the private sector, technical institutions and civil society,⁶² regional partnerships (e.g. based on the Namakwa SEZ) would be important to address regulatory hurdles and promote positive investment solutions on GH2 investments. “There is a distinct need to involve different actors and systems to generate shared or co-constructed knowledge in pursuit of future energy policies, practices and institutions, where scientific knowledge and lay knowledge can interact and co-operate”.⁶³

“Energy Justice” is now established as a leading interdisciplinary energy research subject in the past decade. It is a conceptual framework which identifies when and where injustices occur, especially in low-carbon transitions, and how legal frameworks can best address these injustices.⁶⁴ It is important to identify potential injustices *before* they occur.

Procedural justice requires public participation and disclosure of information across energy activities and jurisdictions.⁶⁵ To ensure transparency and effective public comprehension of choices and trade-offs, all energy components should be treated as part of one system.

“Future proofing” means that, in the future, an energy stakeholder (whether a politician, company director or a civil society representative) can confidently state that, at a specific point in the past, when they had to make a strategic decision, *they relied on existing best practice in the field*.⁶⁶ This means that, in future, decision-makers will not be able to rely on their political office to escape charges of contributory negligence on the decisions they made.

7.3.2.10 Community and municipal engagement

Internationally, there have been difficulties in introducing green hydrogen to communities: “The degree of knowledge about green hydrogen in the population is precarious”.⁶⁷ Familiarity with technology is key. Researchers in Richtersveld have commented on the lack of substantive information on green hydrogen provided in government and SASOL presentations to communities: “According to the community activists, most of the communities who participated left the engagement without knowing what green hydrogen was and how it related to the energy transition”. They were therefore did not understand what kind of jobs could be associated with green hydrogen production.⁶⁸ Basic information must be provided to community members, in such a way that they are not intimidated by technical information, and are comfortable with asking questions.

The NCEDA strategic plan for Green Hydrogen emphasises the importance of various levels of ongoing community engagement.⁶⁹ The topic of community engagement needs to be unpacked into different stages of the value chain. These stages have distinct impacts on people’s lives, depending on the local context in which they develop and the processes by which they are introduced.⁷⁰ Community engagement must be an ongoing process, with multiple and never-ending iterations, as new stages of the project cycle take place and local people are affected in new ways.

These proposals are expanded in the last section of this chapter.

⁶² DTIC, Green Hydrogen Commercialisation Strategy, 2023, p. 71.

⁶³ Vallejos-Romero et al, Green Hydrogen and Social Sciences, 2024, p. 9.

⁶⁴ Hussein et al, Future-proofing for green hydrogen in the Global South, 2024, p. 345.

⁶⁵ Hussein et al, Future-proofing for green hydrogen in the Global South, 2024, p. 346.

⁶⁶ Hussein et al, Future-proofing for green hydrogen in the Global South, 2024, p. 346.

⁶⁷ Vallejos-Romero et al, Green Hydrogen and Social Sciences, 2024, p. 9.

⁶⁸ Nzo, T., Mahabir, J., 2023. Inclusive and decentralized renewable energy development, p. 51.

⁶⁹ NCEDA, 2023, Northern Cape Green Hydrogen Masterplan.

⁷⁰ Vallejos-Romero et al, Green Hydrogen and Social Sciences, 2024, p. 8.

Municipalities are important institutional avenues in consultation processes. However, their limitations, particularly in rural areas such as Namakwa and Richtersveld, have frequently been pointed out. Richtersveld does not have trained Local Economic Development or spatial planning staff. “While SEZs, REDZs and now EDZs are viewed as economic policy designs that off-set economic development in geographical locations and attract lucrative investments, these grand designs can also be disruptive and abrasive due to the imposing top-down approach in their design and implementation in local host municipalities”.⁷¹

This issue is deeply embedded in the current intergovernmental system in South Africa. Although the ostensible normative underpinning of intergovernmental relations (IGR) is a set of three fairly equal “spheres” of government, national and provincial governments have technical expertise that far outweighs the skills at municipal level. This leads to centralised planning by politicians and technocrats at national government, without the necessary fiscal and institutional support to rural local municipalities – and who will eventually be responsible for local accountability and co-ordination.

This may have material consequences, as the priorities of financial partners and business interests tend to become paramount. “Therefore, while industrial development plans in the energy sector are spearheaded by national departments (that is, the Department of Trade and Industry, provincial economic development departments and the Department of Mineral Resources and Energy), they need to be accompanied by support interventions at local government level. This can be achieved through intergovernmental coordination between institutions such as National Treasury, CoGTA, Municipal Infrastructure Support Agency (MISA), Development Bank of Southern Africa (DBSA). The latter institutions should be playing a supportive role to rural municipalities who do not have financial and technical capacity to spatially plan for local government services needed to support industrialisation in their territories”.⁷²

There is an open question about the degree to which COGTA, at national or provincial level, has been brought into the SEZ, Port and Green Hydrogen planning processes, to assess the technical skills in the relevant municipalities, and to devise and fast-track support programmes. Furthermore, the Port and GH2 projects may need to fund the creation of key posts at municipalities (Richtersveld and Namakwa DM), who can undertake local economic development, spatial planning and infrastructural development.

Although engagement with local communities is generally the main focus of discussions on participation, it is important to expand the topic to work-related engagement, particularly in the renewable energy (RE) sector. A high proportion of jobs in the sector are temporary, migrant, or part-time, often with low unionisation rates. Local residents have little experience with such work-place engagement or trade union-type organisation.⁷³

7.3.2.11 Summary

The GH2 complex at Boegoebaai offers major potential benefits to the Namakwa region, in terms of energy generation and use, business development, urban management, and skills development. The real challenge will be to address the institutional and socio-economic difficulties in the Namakwa region, to make the local population willing and able to enter these new economic opportunities.

7.3.3 The SEZ and REDZ concepts

The SEZ programme was introduced in 2014⁷⁴ to address the shortcomings of the previous Industrial Development Zone (IDZ) programme. Between 2007 and 2016, the Department of Trade and Industry restructured the IDZs into SEZs, aligning with new economic policies like the New Growth Path and the Industrial Policy Action Plan aimed at promoting growth, job creation, and poverty reduction⁷⁵. This revision

⁷¹ Nzo, T., Mahabir, J., 2023. Inclusive and decentralized renewable energy development, p. 21.

⁷² Nzo, T., Mahabir, J., 2023. Inclusive and decentralized renewable energy development, p. 2

⁷³ Tunn, J et al, 2024. Green hydrogen transitions deepen socioecological risks.

⁷⁴ Department of Trade and Industry: Special Economic Zones Act 16 of 2014.

⁷⁵ Namakwa District Municipality. Integrated Development Plan Review 2023/2024. South Africa

also responded to global shifts, such as the formation of BRICS, with the overarching goals of supporting diverse regional development and evolving national priorities.⁷⁶

The Namakwa Special Economic Zone (SEZ), led by the Northern Cape Department of Economic Development and Tourism (NCEDA) in collaboration with the national Department of Trade and Industry (DTI), is positioned as a strategic economic hub in the Northern Cape.⁷⁷ The Namakwa SEZ was designated on 21 May 2024, in the Khai-Ma Municipality: “The central thesis is that the SEZ will redress past injustices of mining towns in the province by developing Aggeneys, a purely mining town, into an industrial city that will exist beyond the life of the mine and be an enabler towards the Provincial quest of addressing the cost of doing business in a rural area”.⁷⁸ The Namakwa SEZ is strategically positioned along the N14 corridor to connect mining hubs like Sishen and Postmasburg with the proposed Boegoebaai Deep-Sea Port. This corridor is expected to enhance bulk commodity transport, positioning the region as a critical logistics hub. The Boegoebaai green hydrogen SEZ is now designated as the Green Hydrogen Development Zone.

The theoretical argument for SEZs is based on the impact of innovation and agglomeration, i.e. the firm-level cost-savings and productivity gains derived from the spatial concentration of firms and people in economic clusters or cities. Alfred Marshall (1920)⁷⁹ argued that the clustering of firms reduces transport costs and yields agglomeration economies of scale, typically within one industry. Cost savings are induced by easier movement of goods, labour, and ideas. In addition, the economist Jane Jacobs identified positive agglomeration due to knowledge spillovers *between industries*, which stimulate innovation. Diversity is a key to urban prosperity.⁸⁰ The fact that at least three major industries – zinc mining, a port and green hydrogen production – will form the cornerstones of the SEZ, will maximise the number of support industries established in their vicinity. This has a better chance of creating an innovative business ecosystem than if the SEZ was simply built around one industry.

The Aggeneys investment is large and multi-faceted, and has important regional implications: Cumulative direct and indirect jobs: 6 000, with potential impacts up to 21 000 people; requirements for schools, hospitals, social amenities, police stations and human settlements. At this stage, Boegoebaai SEZ is being developed as a satellite node under the Namakwa SEZ licence. The Department of Trade, Industry and Competition (DTIC) and the province have committed R1 billion each for the top structure, with an additional R600 million allocated by the province for bulk infrastructure development.⁸¹

Numerous criticisms have been made of the efficacy of South African SEZs. The success of IDZs rely on numerous factors such as the design, location, domestic linkages, incentive packages, financing, development, and management model of the SEZ, and often an already robust economy.⁸²

For SEZs to attract foreign investment, they must offer top-tier, globally competitive infrastructure. Previous IDZs in South Africa struggled with inadequate infrastructure, such as water and electricity - hindered their success.⁸³ SEZs in other African countries have also experienced difficulties in terms of attracting foreign direct investments (FDI) flows and achieving sustainable employment generation. However, there are promising outcomes at the East London and Coega SEZs, involving SME support, technical skills training, shared procurement and recruitment systems.⁸⁴

⁷⁶ Department of Trade and Industry (DTI). 2012. Policy on the Development of SEZs, 2010.

⁷⁷ COGTHA, 2020. Namakwa District Northern Cape: Profile and Analysis District Development Model. Republic of South Africa: Pretoria.

⁷⁸ Northern Cape Office of the Premier (2023), presentation to National Council of Provinces (NCOP).

⁷⁹ Marshall, A. (1920). *Principles of Economics*. London: Macmillan.

⁸⁰ Jacobs, J., 1969. *The Economy of Cities*. New York: Random House.

⁸¹ Special Economic Zone (SEZ), Available: <https://www.thedtic.gov.za/sectors-and-services-2/industrial-development/special-economic-zones/>

⁸² Phiri, M & Manchishi, S 2020. "Special economic zones in Southern Africa", p. 2.

⁸³ Qumba, M.F. 2023. Evaluating South Africa's Special Economic Zones.

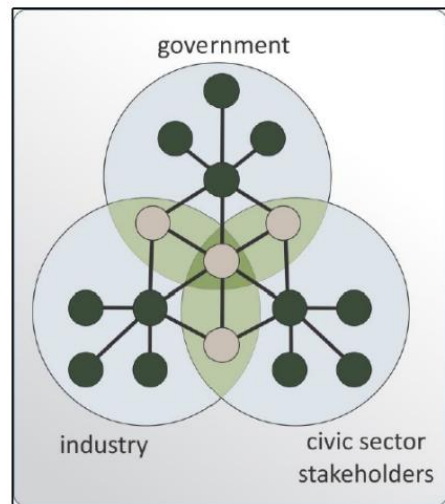
⁸⁴ **Coega:** 2015/16–2018/19, Over three years, 36% of procurement spend was on small, micro, and medium enterprises (SMMEs), compared to five-year target of 40%; 27,152 persons trained in three years, compared to five-year target of 27,899. **East London:** At East London, proactive collaborative arrangements resulted in localized value chains around existing tenants. The zone procures goods and services for construction and other activities from local suppliers. Labour pooling : Job seekers are required to register their information with the zone via an online database. Job seekers are matched with investors and trained with the right skills required by investors. This has lowered labour search costs for investors. Skills, technology, and knowledge spillovers have been created through

The challenge of creating a new set of regional institutional interfaces should not be underestimated. At a regional level, the Namakwa Special Economic Zone will require an overarching institution to facilitate infrastructure and business development, promote integration with local industry, and fine-tune value chains. Typically, multiple sectoral policy frameworks exist for the same region, complicating efforts to attract investment and ensure sustainable development. High-level and consistent inter-agency coordination are required for these zones to make the region economically viable.⁸⁵ There must be a concerted shift towards fostering a more conducive business environment, including tax incentives.⁸⁶ This would include streamlined services and regulatory processes, reducing bureaucratic obstacles.⁸⁷ There are also potential “twin cities” advantages between the SEZ and nearby Oranjemund in Namibia.⁸⁸

The NCEDA and the Northern Cape Office of the Premier have consistently engaged with the Namakwa District Municipality about the SEZ and REDZ and its relation to the green hydrogen development. However, much of the planning and development of the initiative has thus far been driven by the province with little input from the municipalities. The view has been expressed that the Namakwa DM and Richtersveld LM are merely informed of these developments with no active participation in such assessments.⁸⁹ Nevertheless, it is likely that the municipalities’ knowledge of these projects will increase over time, enabling them to play a more assertive role. Financial support and capacity building from other spheres of government is essential for the coherent and holistic development of regional industrial and renewable energy projects in SEZs.⁹⁰

The alignment and interactions between stakeholders is so important that it has been described as “governance of future-making”, referring to “the coordination of actors, interests and institutions to turn expectations into path creation”. “Future-making” leads to “path creation” when alternatives become costly for the decision maker and other actors involved in the governance of future-making, particularly because of sunk costs in the project: “The more expectations are institutionalized, gain collective acceptance and credibility, the more they bind actors, create a governance by expectations, and, eventually, the creation of a new path becomes realistic”.

The process of local consensus-building (which is always a lengthy, sustained, iterative process) can be portrayed as a multi-polar network, connected by legitimate sectoral representatives.⁹¹



Currently, local communities tend to lack the technical knowledge required to engage meaningfully with technicist planners about GH2; this leads to a sense of exclusion, suspicion and resentment.. National governments and international investors should proactively support local and civil-society stakeholders in developing capacities to engage with green-hydrogen futures.⁹²

7.4 SOCIAL IMPLICATIONS OF THE PORT AND GH2 PROJECTS

This section analysis the potential social dimensions of these large projects at three levels:

the zone’s training facility (science and technology training exceeded targets in 2018). Cited in Phiri, M & Manchishi, S 2020. “Special economic zones in Southern Africa”, p. 13.

⁸⁵ Nzo, M. and Mahibir, M. (2021). Renewable Energy Opportunities in Namakwa, p. 18.

⁸⁶ Phiri, M & Manchishi, S 2020. “Special economic zones in Southern Africa”, p. 19.

⁸⁷ Qumba, M.F. 2023. Evaluating South Africa's Special Economic Zones.

⁸⁸ Richtersveld LM, *Spatial Development Framework*, 2024, p. 213..

⁸⁹ Nzo, M. and Mahibir, M. (2021). Renewable Energy Opportunities in Namakwa, p. 18.

⁹⁰ Nzo, T., Mahabir, J., 2023. Inclusive and decentralized renewable energy development, p. 38.

⁹¹ Boutilier, R.G. and Black, L. 2013. Legitimizing industry and multi-sectoral regulation of cumulative impacts.

⁹² Klagge, B et al, (2015), Governance of future-making: Green hydrogen in Namibia and South Africa, p. 104244.

- What the local social context offers (“the receiving environment”) and the longitudinal trajectories (trends over time)?
- What are the possible impacts of the Port and GH2 complex on the local communities?
- What are the policy-makers’ values and goals, and how they can be reconciled with the current social profile of the area as well as the potential impacts of the Port and GH2. To what extent do these projects bolster or undermine such policy goals?

Social impacts are notoriously complex. They are often the product of numerous different interventions simultaneously, such as new inflows of money, new technologies, new institutional systems, and new people. In turn, social impacts stimulate other causal relationships, creating *cumulative* impacts, involving several time frames, social scales, analytical disciplines and unintended consequences.⁹³ In sum, causal chains are unpredictable and “slippery”.

Furthermore, cumulative impacts can result from the aggregation (over time or space) of the impacts of a single activity. Cumulative impacts typically involve multiple actors and causal pathways. The impacts may affect stakeholders in different jurisdictions and involve issues that are legally regulated by multiple institutions; some issues do not fall under any formal regulatory authority at all. South Africa often faces particular challenges regarding the rigidity of sectoral government programmes and regulatory frameworks, so that inter-sectoral and cumulative impacts are seldom recognised or understood.⁹⁴ One way of portraying such complexity is to identify “causal pathways”. Each pathway could involve several sectors, departments and stakeholders.

“Social transformation and human welfare” is one of the four pillars identified in the Northern Cape strategic plan.⁹⁵ This includes basic education, health care, social cohesion and community participation, social protection and safety, sustainable human settlements, and employment and skills development. For these sectors, the proposed Boegoebaai projects could make significant impacts, particularly in relation to skills development and employment. If programme partners undertake corporate social development expenditures, even more beneficial impacts could be achieved. It is likely that this will be mandatory.

However, the Boegoebaai Port and GH2 industry may lead to unintended difficulties related to social cohesion, safety and sustainable human settlements if the project is not designed and implemented carefully. In order to do so, it is important to consider the nature of Namaqualand social development.

7.4.1 Population growth and urbanisation

Population density in Namakwa has always been low, with an average of 1 person per km². It is the least populated district in the country, although geographically the largest district.⁹⁶ The long distance between Namaqualand and the Cape metropolis have always caused the local people to be somewhat isolated from broader developments.

The population of Namaqualand has increased significantly since 1904. The major shift took place between 1930 and 1950, when the population grew rapidly. Another increase took place between 1951 and 1970, probably due to the mining boom, and thereafter increased steadily.⁹⁷

The population of Namakwa DM in general has shown significant spatial shifts in the last 100 years. Population has increased, and become much more urbanised. The rural population was about 13 300 in 1904, increasing to 36 000 in 1980; today, the rural population is only about 3 000 people. By 2011, “non-

⁹³ Franks, et al. 2013. The cumulative dimensions of impact in resource regions.

⁹⁴ Canter, LW and Ross, B, (2010) State of practice of cumulative effects assessment. A new analytical approach is called ‘Cumulative Effects Assessment and Management’ (CEAM) within the field of impact assessment analyses complex adaptive systems. It focuses on the *properties of potentially impacted systems, over time*, even though the required information is often not available, and generalisations from other contexts are of limited use.

⁹⁵ Northern Cape (2020), Office of the Premier, *Strategic Plan 2020-2025*, p. 29; also in the 2024 PGDP Vision 2040 and SOPA Provincial Priorities (see Powerpoint Presentation: NCOP: Three Sphere Planning Session, 2023).

⁹⁶ Namakwa DM, Draft IDP, 2022-2027.

⁹⁷ Dunne, J, Regional Development Strategy for Namaqualand, (1986), p. 97.

urban” areas only included about 7.5% of the population. (However, the definitions of “rural” and “urban” are notoriously vague and slippery. Do rural villages count as “rural” or “urban”? Hence generalisations and comparisons are risky). The main point is that there has been a secular trend of people moving from farms and villages to more formal towns, where modern services and jobs are more readily available.

It is possible that some of these remaining rural people will be attracted to unskilled jobs at the Port and GH2 complex. This will mean that the rural-urban ratio of population will become even more urban-oriented.

In contrast, the urban population increased from about 7 000 in 1904 to over 72 000 today (see Appendix A). While some urban migrants retain a foothold in the rural areas (due to part-time livestock farming), the main sources of income for the population are gradually moving from agriculture and mining to service industries such as catering, accommodation and tourism in the major urban centres (see Section E below), as well as relying on social grants.⁹⁸ Even though the population remains very poor, there are distinct signs of improvement in the quality of life due to the diversification of the economy.

There is a strong population cluster around Springbok, Okiep and Nababeep, and a secondary node at Port Nolloth (See Appendix A). In four towns (Port Nolloth, Springbok, Pofadder and Garies) there has been a significant long-term increase in population, compared to 1980. Today, these are all significant administrative towns. They have become headquarters of larger municipalities, which encompass several settlements. These municipalities receive funding from central government (“equitable share”), which supports municipal staffing and operations. The rapid expansion of social services (health, education), grants, and jobs in the towns offer much better prospects than living in the remote and arid rural areas. This boosts the local retail sector, and there is some tourism (particularly in Garies, Port Nolloth and Springbok).

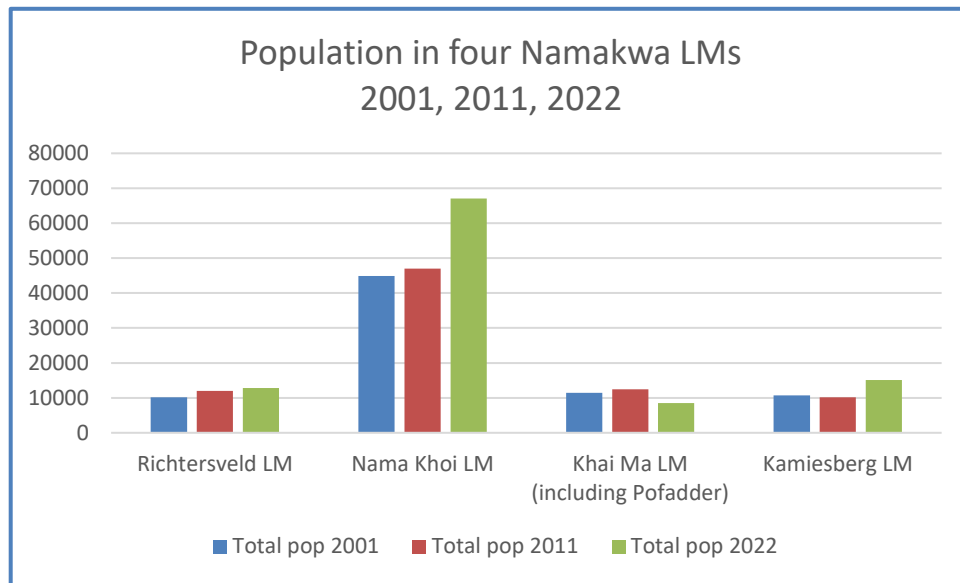
The long-term trend of growing population as well as an increasingly urbanised population has major implications for future development. Urban occupations would be more meaningful and impactful in future, and rural agricultural land may support decreasing numbers of people, and therefore may increasingly become farmed at commercial levels (at least partially replacing subsistence farming). Agriculture would remain important, but a development thrust aimed primarily at urban areas will reduce the population pressure on the land. A great deal would depend on the likelihood of the Port and GH2 project to attract people permanently away from the countryside, as new jobs and skilled opportunities open up.

The population growth rates between 2001 and 2022 show much more dramatic shifts in the latter period (2011-2022) than the earlier period (2001-2011). If the Census statistics are accurate⁹⁹, it suggests significant inflows of population into Richtersveld (the largest population percentage increase), while Nama Khoi LM and Kamiesberg LM also had significant percentage increases. Kamiesberg LM turned its trend around from a slight decline to a marked increase. The population in Khai Ma declined, for which we do not have an explanation.

Population shifts in four Namakwa LMs

⁹⁸ Hoffman, M.T. and Rohde, R.F. 2007. ‘From pastoralism to tourism: The historical impact of changing land use practices in Namaqualand’.

⁹⁹ The confusion with the Richtersveld LM population figure raises some doubt generally.



Dependency ratios measure the number of young and elderly people, in relation to working-age people. The figures are relatively balanced, with Kamiesberg LM showing greater pressure on working-age people to support a larger number of non-working people. These figures are relatively stable, with Nama Khoi LM and Kamiesberg showing a healthy movement towards a lower dependency ratio (see Appendix A).

On several social indicators, the four municipalities (surprisingly) perform in very standard ways (See Appendix A, where we used Sol Plaatje Local Municipality (Kimberley) as a point of comparison (using 2011 census figures). This suggests that thirty years of redistributive policies (such as health, education and social grants) have made a significant impact in the erstwhile remote and underdeveloped Namaqualand. On some of the indicators (gender ratio, proportion of elderly in communities, life expectancy, years of schooling, adult literacy rate, HDI), the four Namakwa municipalities are within the same kind of band as Sol Plaatje LM, suggesting that conditions in Namaqualand are not too dissimilar from other localities.

Of significance to the Port and GH2 project is that the proportion of **working age people** in the Namakwa municipalities are higher than that in Sol Plaatje (65%). In Richtersveld it is 71%, and in Nama Khoi and Khai-Ma it is 69%. Only in Kamiesberg is the proportion lower (at 63%), once again indicating a large degree of out-migration of working-age people from towns such as Garies and Kamieskroon, to Vredendal and Cape Town.¹⁰⁰

The population pyramid of the Namakwa DM shows the relatively small proportion in the under-34 age bracket (See Appendix A for a comparison between the population pyramids of Namakwa, the Northern Cape, and a similarly rural Northern Cape municipality (Pixley ka Seme DM, centered in De Aar. Once again, it suggests out-migration of working-age people with their children.

Not only are these out-migrants the energetic, entrepreneurial and possibly better-schooled members of communities, but they are also the creators of new families. The out-migration of this cohort must act as a dampener on Namakwa DM's current economic performance. On the other hand, the large out-migration of young people from Namakwa DM may mean that these people may wish to return to their place of origin, if new jobs are created by the Port or Green Hydrogen. Furthermore, they may bring technical and business skills and experience with them. Employing this cohort would bolster the Namaqualand economy, but even more importantly, strengthen family and community networks.

¹⁰⁰ One can speculate about causes and effects for out-migration of working age people in Kamiesberg: Since the municipality is located in the south of this study area, and relatively closer to employment centres in the Western Cape, there may be a "pull factor" from outside the region.

The number of indigent households (1129 in Richtersveld, 5334 in Nama Khoi, and 1239 in Khai-Ma) suggest that these households may have one or two members who are unemployed and may be attracted to unskilled or even semi-skilled work at the Port or GH2 project.

The outlying settlements in the Richtersveld LM has shown a slight increase in population in the decade between 2011 and 2021.¹⁰¹

Population, Richtersveld settlements, 2011 and 2021

<i>Population distribution</i>		
<i>Settlement</i>	<i>2011 population</i>	<i>2021 population</i>
<i>Port Nolloth</i>	5131	5595
<i>Lekkersing</i>	368	401
<i>Eksteenfontein</i>	531	579
<i>Alexander Bay</i>	1745	1903
<i>Grootderm</i>	71	78
<i>Kuboes</i>	955	1041
<i>Sanddrift</i>	1739	1897
<i>Sendelingsdrift</i>	191	208
<i>Richtersveld LM</i>	10,731	11,702

The impact of mine closures in the Richtersveld, particularly Alexander Bay, and in Kleinsee, are examined in more detail in Section E.

It is likely that the rapid construction phase of the Boegoebaai projects may draw adult men and women from these villages towards the building sites, and that the population in these settlements may decline for a period of 5-10 years. However, it is also likely that people's remuneration will be ploughed back into these settlements, which may experience a period of prosperity and investment based on remittances. During this time, it would be important for the adult workers and work-seekers of these settlements to access training and on-the-job skills development, so that there is not a post-construction slump in these towns. There is already a track record of this phenomenon, in Steinkopf, for example, where mining remittances have been ploughed back into town improvements.

The launch of the construction phase of the Port and GH2 complex is likely to draw many work-seekers and newcomers to the Port area. Once some work-seekers from elsewhere secure jobs and a foothold in the local town, it will encourage other people from their towns of origin to follow suit. A "migration path" may be created, whereby work-seekers from elsewhere steadily migrate to the Port Nolloth area. This is likely to create a bulge in the working-age population, and may create cultural tensions.

It is impossible to quantify the in-migration of people at this stage. The influx can be managed in many different ways (e.g. different kinds of neighbourhood planning and land management systems). These will depend particularly on municipal policies (Richtersveld LM, but probably strongly influenced by the Namakwa DM, as well as provincial sectoral departments. The new situation of a rapid influx of investment capital and new levels of salaries will raise challenges, options and opportunities that the local policy-makers have never experienced before. The important challenge is to ensure that such policy-making will and capability is available to the LM and DM, and that they are presented with clear and relevant policy alternatives. Sectoral specialists will need to provide advice to all levels of government. One key policy choice will be the level of fly-in-fly-out technical staff, or whether family accommodation should be encouraged. International examples offer benefits and challenges of different options; for this reason, the policy-making process must be informed by specialist advice, at a higher level than is currently available in Namakwa.¹⁰²

A related question is the carrying capacity of the land with regards to population. There are at least two dimensions to this question: Environmental carrying capacity and institutional capability. Environmental carrying capacity refers to the level of population which can be supported on available land and water

¹⁰¹ Richtersveld LM, *Spatial Development framework*, 2024, p. 147.

¹⁰² This point was added as a response to public reviewers.

resources. This, in turn, depends on the way in which people live, and how they make a living. Some livelihoods are more environmentally intensive than others. Agriculture faces real environmental limiting factors, and can support a fairly limited number of people. An industrial strategy can support a much greater number of people, who live in concentrated communities, and whose incomes are generated by the sale of concentrated goods at fairly high prices, which in turn can support higher levels of material welfare. This welfare, in turn, can place more or less pressure on the environment, depending on the policies which are used to manage people's use of the environment (e.g. desalination of water, investment in natural parks, preventing overfishing or hunting for recreation, using large amounts of water for private gardens, etc). Limited resources can support a large number of people, but this puts a premium on management capability, which is strongly emphasised in a later section.¹⁰³

7.4.2 Employment

7.4.2.1 Employment by sector

Historically, the economy of Namaqualand was dominated by agriculture (in terms of lifestyle, but not necessarily value-add), and mining (in terms of regional product and jobs).¹⁰⁴ The economic story of Namaqualand in the last century is about the rise and fall of mining, and the recent rise in government-funded jobs and services. The employment profiles in 1980 and 2023 show the dramatic decline in mining employment (see Appendix A). All the other sectors, except Transport, increased as a share of provincial employment.

In order of magnitude, employment categories in Namakwa District in 2023 were: Government Services (largely funded by intergovernmental transfers, at 28%); Trade, Catering and Accommodation (reflecting tourism activity), at 13%, Agriculture and Mining (both at 13%), Finance and Real Estate (8%), Construction (7%), Manufacturing (4%), and Transport (3%) (See Appendix A for details).

These figures conceal dramatic levels of unemployment in towns such as Kleinsee and Alexander Bay, as well as the Richtersveld generally, due to the closure of De Beers and Alexcor diamond mines. In addition, there is a growing phenomenon of illegal mining (zama-zamas), whose activities will be difficult to regulate in future. Their presence is often associated with vigilantism and crime.¹⁰⁵

Agricultural employment has grown since 1980, due to the expansion of irrigation agriculture along the Orange River. Because of the aridity and land tenure issues in Namaqualand agricultural employment is still less than the average provincial share. Finance and real estate have grown significantly, suggesting that there is more money in circulation in the province; and manufacturing has managed an uptick.

7.4.2.2 Employment levels

The macro-economic and social indicators for the Northern Cape are currently bleak.¹⁰⁶ The unemployment rate is 32% (compared to the 33.5% level in South Africa); and the Northern Cape has the highest rate of youth who are not employed (around 50%). The expanded definition of the unemployment rate (i.e. including people who have given up looking for work) is 44%.

¹⁰³ This point was added as a response to public reviewers.

¹⁰⁴ Mining accounted for 45% of the economically active population in the mid-1980s. Dunne, J, *Regional Development Strategy for Namaqualand*, (1986), p. 98.

¹⁰⁵ A Pretorius and D Blaauw, Kleinsee: Looking for a new dawn amidst the remaining diamond dust; P van der Watt, Alexcor and the Richtersveld community: Unlikely partners to pool, share or profit from joint diamond mining, both in S Matebesi, L Marais and V Nel, 2024, *Local Responses to Mining Closure in South Africa*.

¹⁰⁶ OTP, Memorandum to NCOP, 26 August 2024.

In comparative terms, Namakwa DM performs better than the Province. In 2018, Namakwa District's unemployment rate was 16.5%, which had declined somewhat from 17.8% in 2012 (compared to 28% in JT Gaetsewe, 24% in Pixley ka Seme and 29% in Frances Baard).¹⁰⁷

In 2022, there were 34 792 employed people in Namakwa District, with over 13 500 people listed as unemployed and still looking for work.¹⁰⁸ (This includes the Hantam and Karoo-Hoogland LM areas as well; these unemployed people in those regions may well also be attracted to job offers at the Boegoebaai Port and GH2 complex).

In the Richtersveld LM, 49% of the population is employed, which is higher than the Namakwa District average of 44%. Of the 4002 employed residents, 573 are in the informal sector. Unemployment figures are high and growing in Richtersveld, due to the downscaling of the mines. High unemployment tends to lead to socio-economic problems such as alcohol and drug abuse, crime, and early pregnancy.¹⁰⁹ Furthermore, the rich diamond deposits along the Orange River and the coast attracts significant informal miners to the area.

On a municipal basis, the National Treasury's Municipal Socio-Economic Profiles (MSEP)¹¹⁰ provided some interesting findings. Of significance for the Port and the GH2 project would be the people who work in Construction, electricity, water and transport sectors, as these people would have some skills, experience and will to seek work on the new projects (See Appendix A). In these sectors, there are currently about 300 working people Richtersveld, 2 500 in Nama Khoi, 200 in Khai-Ma, and 300 in Kamiesberg. The four municipalities therefore have roughly 3 300 people who have some experience in the key construction, transport and artisan-type trades (electricity and water). This provides at least some pool of people from where the Port and GH2 can recruit workers, and that would stimulate demand for skilled workers in those firms. As noted earlier, Namaqualanders (many with some level of skills) may return from other centres, particularly the Cape metropole, to seek jobs in these new projects.

It is also possible that there may be people with suitable work experience and training who are currently in the category of "discouraged workseekers" and could readily respond to employment demand and new training and re-skilling opportunities.

Employment effects cannot be readily specified at this early stage, since they will depend on public policies (at national, provincial and municipal level), as well as corporate policies on the two projects. At this stage, there is not yet an in-principle government decision to proceed with these projects. Once such decisions are made (with the GH2 and port, respectively), a great deal will depend on the window period involving the creation of consortia and securing of capital. During this window period, government institutions could (and should) be planning rapidly and dynamically for various aspects of the projects, notably fast-tracking training opportunities and land acquisition for real estate expansion (to manage a possible housing boom). A great deal depends on the conditions which government sets for private partners, e.g. the level of local, regional, and national sourcing of skills and supplies. If government agencies let this window go by, and the projects are implemented without adequate government service readiness, the scenarios will look very different. For example, there will be insufficient local skills, and skilled workers may well have to be sourced from elsewhere.¹¹¹

The previous sections outlined the possible employment impacts of the Port and GH2 projects, in both the construction and operations phases. These phases are not hermetically sealed categories. Typically, construction continues well into the operations phase, as new rounds of construction take place. Even in early stages, the inflow of money into the community will stimulate secondary and tertiary rounds of economic activity, ranging from accommodation and catering to vehicle maintenance and childcare. Every aspect of economic activity stimulates the circulation of money (through wages), which stimulates further

¹⁰⁷ Northern Cape, 2019, *Provincial Growth and Development Plan*, p. 77, Quantec data, 2018.

¹⁰⁸ Northern Cape, 2019, *Provincial Growth and Development Plan*, p 77, Quantec data, 2018.

¹⁰⁹ Richtersveld LM, *Spatial Development Framework*, 2024, p. 135.

¹¹⁰ National Treasury, *Municipal Socio-Economic Profiles*, https://lg.treasury.gov.za/ibi_apps/portal/Municipal_Socio_Economic_Profiles

¹¹¹ This point was added as a response to public reviewer comments.

economic activity. Furthermore, rapid on-the-job training and more formal training will be important for both the construction and operations phases. It is likely that employees on construction projects (e.g. doing metalwork) may find jobs in the operations phases. The Construction and Operations phases tend to have reciprocal interactions and impacts.¹¹²

7.4.3 Household incomes

Historically, people in Namaqualand were desperately poor. Jobs were scarce, poorly paid, and vulnerable to economic cycles. Agriculture offered the only reliable fall-back option, which enabled people to survive. In the 1980s, at least 74% of the coloured population earned less than the national Household Subsistence Level (HSL), and were living in “abject poverty”.¹¹³

By 2019, this high level of poverty had declined to only 22% of the population living below the poverty line.¹¹⁴ This is a remarkable improvement from the 1980s, although it is still a worrying statistic. It is likely that social grants have played a major role in reducing the worst ravages of poverty.

The monthly income levels in Namakwa District are extremely low, compared to Namakwa DM (R379) and certainly compared to South Africa as a whole (R11 907) (2019 figures; See Appendix A).¹¹⁵ Average household incomes in Kamiesberg (R378), Khai-Ma (R420), Richtersveld (R528) are very low indeed. Nama Khoi (2 239) is significantly higher than these outlying towns, compared to Sol Plaatjie LM in Kimberley (R10 146), which is almost five times that of Nama Khoi.

However, that does not mean that families in Namaqualand fare particularly poorly on all criteria. The HSRC study of food and nutrition security in the Northern Cape found that a larger proportion of households in Namakwa District were food secure than the Provincial average.¹¹⁶ This suggests that some of the resources of Namaqualand families may be obtained without paying for it, e.g. pedestrian transport, or producing at least some of food used in the home. In rural areas, there is a great deal of reciprocity amongst community members, exchanging meat and other food in return for services such as transport or herding, without any of this entering the monetized economy.¹¹⁷

Having multiple income streams is a crucial support mechanism for poor households. In many cases, livestock owners do not farm primarily for the purpose of commerce or sale of livestock, but rather as a hedge against economic risk, while being prepared to do a range of other activities which may produce a temporary income.¹¹⁸

With the arrival of large projects such as the Port and the GH2 industries, there will be a sudden massive injection of cash into the local economy. Many local people will benefit immediately, from jobs or service provision (such as accommodation). Other people will take longer to find a foothold in these projects or in their induced impacts.

Once these projects commence, the cost of living is likely to increase.¹¹⁹ Inflation tends to have a greater impact on the poor than on more wealthy community members. Local inequality will intensify because of the rising prices of local commodities, notably food, housing, services and strategic items (such as car parts). This affects all local residents, including those who do not earn the higher wages paid by the Boegoebaai companies.¹²⁰ Over time, those people involved in the wealth boom can ride out these price increases, or can even benefit from them; other community members tend to experience an erosion of their incomes.

¹¹² This point was added as a response to public reviewer comments.

¹¹³ Dunne, J, 1986, , Regional Development Strategy for Namaqualand, p. 102.

¹¹⁴ COGTA, *Namakwa District Profile*, p. 5. This included the Hantam and Karoo-Hoogland LM areas.

¹¹⁵ National Treasury, MSEP reports, Richtersveld, Nama Khoi, Khai-Ma, Kamiesberg LMs 2024.

¹¹⁶ Mutanga, S et al, National Food and Nutrition Security Survey.

¹¹⁷ Berzborn, S and Schnegg, M, 2007, Vulnerability, social networks, and resilience.

¹¹⁸ Berzborn, S, 2007, The household economy of pastoralists and wage-labourers in the Richtersveld.

¹¹⁹ Chapman, R., et al., Resource development, local adjustment, and regional policy.

¹²⁰ Christopherson, S. and Righthor, N. 2011. How shale gas extraction affects drilling localities, p. 359.

Landowners who lease their properties to shale gas companies would gain financial rewards. Inequality will intensify.

7.4.4 Housing and spatial planning

Richtersveld LM will bear the brunt of future housing shortages triggered by the Port or the GE complex.

In Richtersveld LM, there is a backlog of about 160 houses, where the households currently reside in informal dwellings or shacks.¹²¹ About 20% of the Richtersveld population do not have access to piped water. There is a backlog of 602 households making use of pit latrines, bucket systems or composting toilets. About 70 households have no access to phone communication. Compared to other municipalities, this housing backlog does not seem large, but for a municipality so financially constrained as Richtersveld, the need for 160 houses does pose challenges.

In 2024, the Northern Cape Government was planning to build sub-economic homes in the following communities in Namakwa District, but none were earmarked for Richtersveld. Similarly, in the Namakwa Spatial Framework (2023), there was no provision for Richtersveld housing provision. Other towns were identified for housing expansion (see Appendix A). This is not necessarily unfair or unjust, since housing needs may well be greater in other municipalities; but it does suggest that housing expansion in Richtersveld, as a result of the Port or GH2 complex, will have to be done extremely rapidly – to provide for existing needs as well as the influx of employees.

Currently, water supply in several Richtersveld settlements is very constrained. The Namakwa District SDF has proposed a bulk Water Supply refurbishment in Port Nolloth (presumably the boreholes), and replacement of asbestos cement pipes. Several towns draw water directly from the Orange River (Sanddrif, Kuboes, Brandkaros, Beauvallon, Alexander Bay and Port Nolloth). The water is used for household consumption and agricultural activities as well as industrial activities such as diamond mining. Because of the long pumping distance, this water is expensive to provide. Other towns also rely on boreholes (Kuboes, Lekkersing, Eksteenfontein, Port Nolloth, the commonage area of the Richtersveld municipality, and the Richtersveld National Park). Kuboes, in particular, faces challenges, and Port Nolloth has insufficient supply during the holiday season.

Remarkably, in the light of the water shortages, the Richtersveld LM plans to eradicate VIP and UDS toilets, presumably in favour of water-borne sanitation.¹²² This will increase the need for wastewater treatment plants. In contrast, the Karoo Regional SDF, sponsored by the Department of Agriculture, Land Reform and Rural Development (DALRRD), argues for dry sanitation.¹²³ The issue of sanitation technology is typically a very sensitive policy matter. Local municipalities and communities often reject any technologies other than water-borne sewerage, because such technologies are seen to infringe human dignity. However, water-borne sewerage has massive financial and management implications, that such communities cannot afford.

The Transnet Boegoebaai report makes the following housing proposals for housing construction in the Port/GH2 area:¹²⁴

- Housing: Facilitate the development of 1 680 new housing opportunities for construction workers
- 220 new housing opportunities for the permanent Transnet families to live in the area
- Assisting the informal settlement community development in Sanddrift.

This level of housing and infrastructure provision will not be easy or rapid. Housing needs to be considered in the context of spatial planning. Some of the challenges in Namakwa District are: Growing human settlement backlogs; growing informality (due to unmet demand for formal houses); poorly sited informal settlements, often located in high-risk areas, e.g. flood plains, exposed to fire and erosion, or in sensitive environmental areas; lack of spatial transformation and integration with the rest of the urban fabric; delays in tender processes; shortage of serviced stands ; Insufficient funds resulting in certain services (such as

¹²¹ Richtersveld LM, *Spatial Development Plan*, 2024, p. 127.

¹²² Richtersveld LM, *Spatial Development Framework*, 2024, p. 182.

¹²³ DALRRD 2021, *Regional Spatial Development Framework*, p. 124.

¹²⁴ Transnet, Boegoebaai Port Development Social-Economic Benefit Report, 2024, p. 55.

septic tanks) not being installed; and historically, houses were not built up to standard.¹²⁵ Consequently, the Namakwa Spatial Framework advocates to prioritise the upgrade of informal areas by expanding basic services such as water, sanitation, electricity and waste removal.

Municipalities have to do urban planning within a new planning framework, the Spatial Planning and Land Use Management Act (SPLUMA) (2013). Every Local Municipality needs to develop a single, integrated Land Use Scheme.¹²⁶ Municipalities also have to set up decision-making bodies, called Municipal Tribunals, to consider land use management applications. SPLUMA requires municipalities to determine spatial planning categories in land-use planning. Existing zoning scheme regulations have to be amended or upgraded to include these new concepts. In this context, SPCs A, B and C areas refer primarily to the natural landscape, while SPCs C, D, E and F refer primarily to human-made landscapes.

- SPC A: CORE CONSERVATION AREA.
- SPC B: NATURAL ENVIRONMENT BUFFER AREA.
- SPC C: AGRICULTURAL AREAS.
- SPC D: URBAN AREAS.
- SPC E: INDUSTRIAL AREAS.
- SPC F: SURFACE INFRASTRUCTURE.

In terms of SPLUMA, “Land use management” includes sophisticated new approaches to activities such as land-use changes, e.g. rezoning a property from residential to commercial use; “green fields” development, i.e. on previously undeveloped land; the subdivision and consolidation of land parcels; the upgrading of informal settlements and neglected city centres; public-private partnerships; preventing negative effects on natural habitats, cultural landscapes, and air and water quality; preventing overcrowding and unsafe building construction, and negative impacts on the health and safety of neighbours; efficient infrastructure provision; traffic management; determining property values for purposes of rating, which in turn affects municipal revenue; aesthetic and heritage concerns; and promoting investment.¹²⁷

This kind of planning capacity, involving sophisticated GIS technology, does not currently exist at municipalities, and is likely to become a planning bottleneck. The Department of Land Reform and Rural Development (DLRRD) is assisting the Namakwa DM as well as the Nama Khoi and Richtersveld Local Municipalities to compile the basic research and documentation, possibly in anticipation of rapid development rollout associated with the Boegoebaai Port and GH2 complex. The Richtersveld Land Use System was drafted in 2022, and will form the basis for land use management in the Municipality. A Land Audit has been compiled for the Richtersveld LM, through desktop analysis using a GIS platform.¹²⁸ However, for Richtersveld LM to undertake such planning activities in the near future is a daunting prospect. It typically takes years, and skilled staff with local knowledge, to build up such planning capabilities.

In addition, the Namakwa DM Spatial Framework proposes green practices for new projects. These novel techniques are not established in the Namakwa area, and it will be up to designers associated with the Port and GH2 facilities to incorporate these desiderata into their designs.¹²⁹

The Namakwa District Spatial Framework urges Local Municipalities to compile or upgrade their Human Settlement Plans, which would prioritise housing projects in the towns with the most urgent demands. This can then be aligned with the Northern Cape Government’s Department of Human Settlements. However, the rapid growth of Port Nolloth, Boegoebaai and Alexander Bay will require these planning processes to be *undertaken at the same time* as building new project premises and immediate requirements such as employee housing.

For the Port and the GH2 complex, there are four possible employment scenarios, with different housing requirements:

¹²⁵ DALRRD, Namakwa Spatial Framework, 2023, p. 96.

¹²⁶ DALRRD, Namakwa Spatial Framework, 2023, p. 122.

¹²⁷ DALRRD, Namakwa Spatial Framework, 2023, p. 127-8.

¹²⁸ Richtersveld LM, *Spatial Development framework*, 2024, p. 152. It identifies current land uses, environmentally protected areas, arable and non-arable soil potential, traditional authorities and land, land ownership, mining applications, land reform projects, township establishments, and areas under renewable energy production or licence applications.

¹²⁹ Including using rainwater harvesting for indoor use, and minimising water use in buildings; using durable materials and generating less waste; managing indoor temperatures through building design; renewable energy and low carbon technologies for building supplies; solid waste recycling; greywater use for gardens; and solar panels for electricity.

- Recruitment of expatriate and South African professionals, who would stay in local hotels or guest houses. For small towns to absorb such staff, often staying for weeks or even months, would pose massive challenges for local housing provision, with limited available guest houses or hotels. They may be booked out for months or years by construction companies and other specialists. This would squeeze out tourist visitors.¹³⁰
- Some longer-term technical specialists may bring their families and would require rented homes. This may offer a windfall to homeowners, renting out premises at premium prices; this in turn may force out families who were already renting houses. The existing housing shortfall will be exacerbated, with deleterious social consequences for families without adequate accommodation.
- General workers will either continue to live in nearby towns and be transported to work on a daily basis. Alexander Bay is a likely housing centre.
- In-migrants may live in back-yard shanties or informal settlements, placing more strain on water, electricity and other municipal services.

The experience of sudden in-migration linked to large projects (such as mines and ports) is called the “boomtown” phenomenon. Boomtowns are associated with rapid inflows and outflows of investment capital, labour, material and infrastructure. Subsequent “busts” can either be rapid and catastrophic declines (for example, when a mine shuts down), or a slow process of down-scaling, or simply a transition from a construction phase to a less labour-intensive phase of energy production¹³¹ One of the key variables affecting the economic and social future of receiving towns is their ability to promote economic diversification, to act as a hedge against sudden declines.

The main direct impacts are likely to be in the Boegoebaai, Alexander Bay and Port Nolloth areas. This zone is likely to become industrialised, modernised and face heavy traffic and housing pressures. Daily commuting from Port Nolloth and Alexander Bay to Boegoebaai will be intensive. Road traffic from Springbok will be heavy, to transport materials for construction, as well as project staff. More remote communities will experience indirect impacts, such as community members travelling to Boegoebaai, probably on a weekly basis, as well as improved transport systems and social services, due to improved municipal financial resources.¹³²

Boomtown dynamics are almost inevitable, and would require an effective multi-sectoral municipal team (with District and provincial support) to manage. There will be a housing shortage. It will be critically important to identify new residential land, and to service it (provide water, electricity, sewerage etc) for new housing construction, to take the pressure of housing demand (as was the case in Kathu, for example). This requires municipal policies and skills regarding land acquisition, servicing, and sales - which the Namakwa District Municipality could assist. Targeted Provincial funding needs to be mobilised in a variety of sectors (housing, transport, health and education), but Government may also require private consortium members to provide key services (such as adequate worker housing and community programmes).¹³³

In the context of the Port and GH2 projects, the influx of workers during the construction phase could alter the social fabric of small towns. In addition, the influx of job seekers and logistics traffic strains local municipal infrastructure, which is designed for a smaller population. This leads to skewed housing availability and speculative rental markets. The resulting pressure on existing infrastructure, especially residential water and sewerage systems, requires additional resources for upgrades—resources that underfunded rural municipalities often lack.¹³⁴

¹³⁰ However, there may be a beneficial impact: If construction companies sign long-term leases with local guest houses, so that they can be assured of a steady flow of income over several years, they could use this income to add to their accommodation facilities in order to maintain the tourism market. This would add to the local building boom, and create further market distortions, but it would mean that the local economy invests in diversification.

¹³¹ Jacquet, JB, 2009. Energy Boomtowns & Natural Gas, p. 24.

¹³² This point was added as a response to public reviewer comments.

¹³³ This point was included as a response to public reviewer comments.

¹³⁴ Wesso, R et al, 2023. Green Hydrogen Community Development Toolkit.

*A new “boomtown” area:
Intensive housing and industrial developments planned for Alexander Bay and Boegoebaai¹³⁵*



The “boom” impacts depend significantly on the speed and scale of industry growth in a given community. A fast pace of development means that more workers will be required per year, with more housing, infrastructure and road usage needs, which will be more difficult for local communities to manage. A slower pace of development will be less disruptive and will extend economic benefits over a longer period of time.¹³⁶ Other factors affecting the pressures of a boomtown are the existing housing capacity of a community before a project begins; companies’ policies on providing their own staff housing; and the availability of local skills relevant to the operations of the project.

As a result of the inflow of employees, there will be pressure on housing and infrastructure, increases in the cost of living (and subsequent impacts on local poverty levels), and the potential squeezing out of other alternative economic options. Almost all towns in the study area already experience housing backlogs (Alexander Bay is an exception), due to inter-town and farm-town migration trends. Once some work-seekers from elsewhere secure jobs and a foothold in the local town, it will encourage other people from their towns of origin to follow suit. The rise in incomes could lead to a property boom, with increased house prices. This, in turn, could increase municipal revenue from the rates base, in the medium term (houses are re-valued every five to ten years for rating purposes).

Migrant workers who are unable to afford high rental prices resort to living in townships as backyard dwellers or establish informal settlements on private land. Unplanned migration and population growth disrupt the municipality’s ability to implement effective spatial planning and secure financing for bulk infrastructure development.¹³⁷ Slow Government progress regarding land release for worker housing can create development bottlenecks and delays, due to complex and time-consuming approvals processes.¹³⁸ Rapid housing price increases can launch a property construction boom with inflated house prices; however, these entrepreneurs may then face rapid declines in property values once the construction phase tapers off.

Boom towns have far-reaching impacts. Housing shortages and high living costs generate significant economic insecurity, especially among already vulnerable populations and those on low or fixed incomes, including the elderly¹³⁹; with some poorer people becoming subject to homelessness, overcrowding or being forced out of town.¹⁴⁰ As a result of rising housing costs, cheaper housing options such as caravan parks, tents and garages may be sought by long term residents.¹⁴¹

With large projects, boomtown dynamics are almost inevitable, and would require an effective multi-sectoral municipal team (with District and Provincial support) to manage. There will be a housing shortage; however,

¹³⁵ DALRRD, Spatial Development Framework, 2023, p. 117.

¹³⁶ Kelsey, T.W. et al, Economic Impacts of Marcellus Shale in Pennsylvania, p. 13.

¹³⁷ Nzo, T., Mahabir, J., 2023. Inclusive and decentralized renewable energy development.

¹³⁸ Haslam-McKenzie, F. 2013. Delivering Enduring Benefits from a Gas Development.

¹³⁹ Ryser, L. and Halseth, G. 2011, Housing Costs in an Oil and Gas Boom Town.

¹⁴⁰ Ennis, G., Tofa, M. and Finlayson, M. 2014. Open for Business but at What Cost

¹⁴¹ Chapman, R et al, 2014. Resource development, local adjustment, and regional policy.

it is important to identify new residential land timeously and to service it (provide water, electricity, sewerage etc) for new housing construction, to take the pressure of housing demand (as was the case in Kathu, for example). This requires municipal policies and skills regarding land acquisition, servicing, and sales - which the Namakwa District Municipality could assist. Targeted Provincial funding needs to be mobilised in a variety of sectors (housing, transport, health and education), but Government may also (and should) require private consortium members to provide key services (such as adequate worker housing and community programmes).¹⁴²

The Richtersveld LM (with the support of the Namakwa DM and COGTA) should pro-actively release land for housing, and install infrastructure, so that the project companies can erect housing, or in-migrants can build informal housing if required (in the short-term), or the municipality provide public housing (in the longer-term). Bulk and reticulation infrastructure, such as water, electricity and sewerage infrastructure, as well as local streets and stormwater drainage, must be built rapidly to cope with the additional demand.

7.4.5 Health

Generally, in our study area, the health profile is quite good: The infant mortality rate and under five mortality rate are low; acute malnutrition under five is low; and immunisation rates are generally over 80%.¹⁴³

There will be three major challenges regarding the health impacts of the Port and GH2 complex. The first is the sheer enlargement of the local population; new arrivals will need access to clinics, doctors, and hospital facilities, for illnesses as well as injuries. Port Nolloth already has a hospital, with a fairly diverse range of services.¹⁴⁴ However, barely a year after opening its doors, the Martha Griffiths Hospital had run out of supplies, and appealed to the public for donations.¹⁴⁵ Cash flow problems in the Northern Cape Department of Health had reached critical levels.

Secondly, the new construction and operations staff of the Boegoebaai projects may be vulnerable to accidents, which require more sophisticated levels of trauma treatment.

The third major issue will be the management of HIV/AIDS, particularly in the context of the closure of PEPFAR-related services by the United States. The key to the successful HIV/AIDS management programme has been early detection of cases, so that people can go on treatment before they develop a heavy viral load. This work was done by NGOs in the past, and there is no clear strategy yet for the Government to meet his gap.¹⁴⁶ Without such early interventions, there is the prospect of rising numbers of new HIV cases, more hospital admissions, and inevitably deaths.

The real difficulty in maintaining ART roll-out is called “disengaging from care”, i.e. people dropping out of their ARV maintenance programme. Such “disengagement” is linked to factors like frequent relocations (visiting new clinics), and engaging with an inflexible state healthcare system with long waiting times. Patients may have mental health challenges, lack of family or social support, work commitments, and transportation costs. While people are disengaged from care, they can transmit the virus. In this respect, NGO work had been crucial. Without more assertive government service delivery and encouraging people to re-join treatment programmes, the impact on the population of Namaqualand may well be dire. The longer someone interrupts their treatment and the more times this happens, the more they are at risk of opportunistic infections, severe complications, getting very sick and needing costly hospitalisations. Clinics need to provide friendly, professional services that encourage people to return to and stay on treatment, and

¹⁴² This point was added in response to public reviewer comments.

¹⁴³ National Treasury, MSEP reports, 2024.

¹⁴⁴ Including a trauma unit, radiology, dispensary, psychiatric ward, maternity wards and paediatric wards. Consultation rooms will be used for reproductive health services, a psychologist, and dietician.
<https://www.vukuzenzele.gov.za/new-health-centre-port-nolloth>

¹⁴⁵ <https://www.news24.com/news24/southafrica/news/its-time-to-help-where-we-can-state-run-northern-cape-hospital-appeals-to-public-for-donations-20231121>

¹⁴⁶ Ufrieda Ho, Closing the gap: South Africa’s ambitious strategy to add 1.1 million on life-saving antiretrovirals, *Daily Maverick*, 6 March 2025.

services need to be flexible. These could include more external medicine pick-up points, scripts filled for longer periods, later clinic operating hours, and mobile clinic services.

At least 27 000 people in Namakwa district are already on ART (including 4 228 in Richtersveld; see Appendix A). Every year, around 40 people in Richtersveld join the programme, largely due to proactive HIV-testing services (which are likely to end now). There is a danger that increasing HIV infections and illness may reduce employment of local people on the Boegoebaai projects.

The local Hospital and HIV/AIDS are likely areas where Boegoebaai CSI funding could assist. The Transnet SEB report proposes various interventions to support clinics (see Appendix A). There would also have to be a fast and reliable ambulance service from Alexander Bay to Port Nolloth, or to Springbok, particularly in the light of more working people in the area.

7.4.6 Education, skills and training

By the 1980s, little economic diversification had taken place (away from mining). Employees had gained few skills that were readily marketable for other industries. This reduced their options to obtain employment outside the area. Education options for children were very limited, also restricted by distance and poor roads.¹⁴⁷ In 2019, in contrast, 31% of the people older than 20 years in the Namakwa District had a matric or higher qualification. Many more schools had been established by 2022. Rapid progress had been made.

Yet a significant education deficit still remains: A total of 17% of the population older than 15 years had not completed Grade 7, and are therefore not functionally literate.¹⁴⁸ A large number of young people drop out of the education system between Grade 6 and 9.

About a fifth of the adult population had **matric passes** in 2011, and this has improved to about a quarter of the adults in 2022. (This trend is also reflected in the Namakwa District area as a whole, where matric rates improved from 19% to 26%; see Appendix A for statistics). However, the standard of maths and science teaching is often not adequate to enable learners to qualify for tertiary education, particularly at university level.

A study of over 300 respondents in Port Nolloth found that 27% had completed matric, and 7% had some form of tertiary training, which included useful skills such as boiler makers, motor and diesel mechanics, plumbing and welding.¹⁴⁹ This suggests that there is a reasonable pool of potential employees who can be trained for semi-skilled and technical jobs. However, a different conclusion was drawn by Nzo and Mahabir (2023): “The low levels of education and low skills base (see Appendix A) paints a worrying picture about the ability to attract the requisite skills from local communities in the development of the green hydrogen project”.¹⁵⁰ It is not clear what the conclusion should be, faced with such statistics. Much may depend on the age of matriculants, where they live, how mobile they may be, and how desirous they may be for further training.

The Transnet report (2024) proposes several CSI measures in the education sector, including new creches, support for primary and high school learners, assisting in the creation of another high school, and launching a tertiary training facility in Port Nolloth (See Appendix A).

A TVET College (Technical and Vocational Education and Training) operates in Okiep, just north of Springbok. It is part of the Northern Cape TVET system (which also has campuses in Kuruman, Kathu, De Aar, Kimberley, and Upington). There are 27 lecturers and space for 580 students.¹⁵¹ Hostel accommodation is provided for about 100 students. Bursaries are available from NSFAS. Courses are offered at pre-matric and post-matric levels (see Appendix A for details).

¹⁴⁷ Dunne, J (1986), Regional Development Strategy for Namaqualand, p. 95.

¹⁴⁸ COGTA, Namakwa District Profile, n.d., p. 5.

¹⁴⁹ Fourie and Oppel, *Socio-economic Study*, p. 32.

¹⁵⁰ Nzo, T., Mahabir, J., 2023. Inclusive and decentralized renewable energy development, p. 14.

¹⁵¹ <https://ncrtvet.com/namaqualand-campus/>

The Office of the Premier is spearheading at least two catalytic training projects in Springbok, funded by the Services SETA and the Manufacturing, Engineering and Related Services SETA.¹⁵² These programmes should be expanded to reach all Namaqualand towns.

The Transnet CSI proposals include an agricultural training college in Port Nolloth. While this reflects the importance of agriculture in the area, the urgent need will be for another branch of the Springbok TVET college. This will mean that all students will be assured of a job as soon as they qualify. It will also benefit the industries who would not have to attract suitable staff from far away.

In the meantime, the Namakwa District Municipality and the University of the Western Cape (UWC) have already formalised a Memorandum of Understanding to collaborate on green hydrogen technologies and renewable energy initiatives. The partnership aims to position the Namakwa District as a leading hub for GH2 production, creating employment opportunities and providing specialised training in the sector. It will focus on outreaches at high schools and university students, particularly those pursuing careers in engineering and chemistry.¹⁵³ This seems a very promising start, and could serve to launch a TVET branch at Port Nolloth.

7.4.7 Social cohesion and social services

In Transnet's analysis, the potential socio-economic benefits of the Port were flagged as key "public good" benefits of the port. This includes health care, education, stakeholder and youth excursions, environmental programmes, benefiting the aged, early childhood development, employment creation and skills development, and addressing substance abuse and Foetal Alcohol Syndrome.¹⁵⁴ There are already widespread social challenges.

Namaqualand has always been poor. Janeen Dunne described the prevalent psycho-social problems in Namaqualand in the 1980s: Low aspirations; apathy; conservatism; community divisions and envy, which inhibit innovation; the Apartheid legacy of inadequate financial capital for housing, farming and businesses; inadequate housing supply; limited local government revenue streams; weak agricultural markets and limited farm production; churches hampered by low financial resources and long distances; and municipalities staffed by people with limited skills.¹⁵⁵ In the last forty years, there have been some improvements, due to social grants, tourism developments, and improved government services.

Particularly in the urban areas, there is widespread dependence on social grants. There is also social decay, and abuse of drugs and alcohol. This creates many social ills, especially amongst the youth, including teenage pregnancies. Recreation centres, after-school and youth care centres, rehabilitation centres and other forms of social support will be required to enable communities to make use of new opportunities.¹⁵⁶

This general picture may appear rather dismal, but the local population is also resilient. There are strong social norms, particularly on the communal lands. While many analysts point to the "tragedy of the commons" phenomenon, where individual self-interest undermines collective management of common resources, there are indeed strong principles which resource users adhere to, such as birthright access to grazing resources, access to stock-posts, and access to water points.¹⁵⁷ Significantly, the Port Nolloth area is generally listed as a relatively safe area.¹⁵⁸ In the ten-year period between 2008 and 2018, overall crime decreased at an average annual rate of 2% in the Namakwa District Municipality.¹⁵⁹ Due to a lack of

¹⁵² Northern Cape, Office of the Premier, Memorandum to NCOP. Services SETA focuses on sectors such as personal care; real estate; communication and marketing; management and business; labour (employment agencies); cleaning and hiring (office machinery), equipment and rental leasing; renting of construction or demolishing equipment with operators; renting of personal and household goods; function and catering equipment hire; truck and plant hire. MERSETA focuses on metals, auto, tyres, plastics and components manufacturing.

¹⁵³ Box, H. 2023. Namakwa District Municipality and UWC sign Green Hydrogen MOU.

¹⁵⁴ Transnet (2024), , Boegoebaai Port Development Socio-economic Studies: SEB Report, p. 7.

¹⁵⁵ Dunne (1986), J, Regional Development Strategy for Namaqualand, p. 180-197.

¹⁵⁶ Nama Khoi LM, *Spatial Development Framework*, 2025, p. 87.

¹⁵⁷ Allsopp, N et al, Environmental perceptions and practices of livestock keepers on the Namaqualand Commons challenge conventional rangeland management.

¹⁵⁸ Northern Cape, 2022, Provincial Spatial Development Framework, p. 49.

¹⁵⁹ COGTA, *Namakwa District Profile*, n.d., p. 17.

research, the patterns of social cohesion in Namaqualand, particularly in the urban areas, are not well understood.

The “boomtown” scenario has already been used to describe the experience of small towns when large projects are located in the vicinity.¹⁶⁰ The social challenges potentially caused by “boomtown” conditions should not be underestimated. The ‘social disruption’ thesis¹⁶¹ argues that rapid economic and demographic changes associated with large-scale projects lead inevitably to social and psychological dislocation and a breakdown of established community social structures. The rapid pace of development stretches services and infrastructure, can undermine a sense of community and belonging, and can contribute to problems such as drug use, crime, alcohol abuse, domestic violence and suicide.¹⁶² Socio-psychological impacts can be pervasive and diffuse, and can include an increased sense of insecurity, uncertainty, injustice, anger and family stress, either during the start-up phase or during a later down-turn. These, in turn, can affect the motivations, goals and decisions of community members.¹⁶³

The cost of living will increase, as new demand for housing and commodities works through the local economy. However, this will be balanced by local employment (on the projects or secondary industries), which will increase people's cash resources. However, this will, in turn, cause the cost of living to increase even further. The important policy principle is to increase the diversity of opportunities for local people to earn these new wages, so that they can afford more expensive goods and services. It is also likely that the local economic growth will lead to investments that may *reduce* local prices, e.g. chain stores (with competitive prices) opening their doors in Port Nolloth. As more money circulates in the economy, new niches will open for informal and semi-formal occupations, such as child-minding, catering, vehicle maintenance and caring for the elderly. Local economic multipliers are likely to increase opportunities, although in a context of higher prices, and possibly an increase in social inequality.¹⁶⁴

Inequality is often associated with (and confused with) severe poverty experienced by some strata of the community. Inequality can be either exacerbated or reduced by large projects, depending on how proactively local systems of empowerment (e.g. technical training) are undertaken. It is possible that the multiplier effects of the projects may entail greater levels of prosperity for almost all social strata, but that high levels of inequality may remain (everyone is somewhat richer, but some people are significantly richer than others). For example, the projects would pay municipal rates and taxes, which can ploughed into improved housing schemes and recreation facilities; however, inequality will remain because people with high-level jobs and skills will earn more than before. Poverty may be reduced, but levels of economic inequality may remain, or even increase.¹⁶⁵

Boegoebaai employees who are long distance commuters may remain on the worksite (“man-camps”), where all accommodation, meals, entertainment and other amenities are provided. They may work for the main project companies, or for related services such as catering, transport, or construction. Typically, these migrants are male. For the commuters themselves, the system of single worker migration can be positive (e.g. extended leave, no interruption to family's residence, it does not affect their children's education, high incomes, camaraderie, career opportunities), but also bring negative consequences (loneliness, marital strain, anxiety and possible alcohol abuse). Facilities may be rather primitive during the construction phase.¹⁶⁶ Newcomers often bear social hardships, including substandard living conditions, stress from moving to a strange and isolated community, and social isolation from hostile old-timers.¹⁶⁷

¹⁶⁰ Nzo, T (2021), *Whose Power Is It Anyway*.

¹⁶¹ England, JL and Albrecht, SL, 1984. Boomtowns and social disruption; Lawrie, M., Tonts, M. and Plummer, P. 2013. Boomtowns, Resource Dependence and Socio-economic Well-being.

¹⁶² Chapman, R et al, M. 2015. The resource boom and socio-economic well-being.

¹⁶³ Loxton, EA et al, 2013. Exploring the social dimensions and complexity of cumulative impacts; Shandro, JA. et al, 2011, Perspectives on community health issues and the mining boom-bust cycle.

¹⁶⁴ This point was added in response to public reviewers.

¹⁶⁵ This point was added in response to public reviewers.

¹⁶⁶ Misan, G.M. and Rudnik, E. 2015. The Pros and Cons of Long Distance Commuting.

¹⁶⁷ Pershee, J.P. 2011. North Dakota Expertise; Filteau, MR 2015. Go back to Texas, Gas Bastards!

Local communities would experience a rapid influx of newcomers, with different values, habits and needs. An increase in traffic and overcrowding may worsen their sense of physical insecurity, and face-to-face relationships become more distant.¹⁶⁸ Towns are suddenly flooded with strangers.

The rapid influx of people tends to loosen social ties, with a constant population churn. Community leaders complain that there is limited sense of community commitment, thus contributing to a sense of transition and 'shallowness'.¹⁶⁹ In rural communities, farmers may also perceive a threat to their social status as the most culturally and economically significant sector of the community, causing resentment and disorientation.¹⁷⁰ In boomtown conditions, tensions can arise between new in-migrants and old-timers.

There is a *prima facie* argument that benefits will not be distributed *equally*, due to factors such as geographic distance, average age of community populations, previous job experience, technical skills, and willingness to take on training. Another question is whether benefits will be distributed *equitably*, i.e. reasonably accessible to communities and demographic categories. Young people who are willing to enter training programmes will benefit significantly; older people without technical skills may be willing to take on manual labour jobs (also at different levels of skill). Some people will benefit more from on-the-job training and promotions than others. Individuals with an entrepreneurial mindset may work for other sectors (e.g. business services, catering or transport). It is likely that a small number of people in distant communities will respond to these opportunities, thereby increasing remittances to their communities. Some people will not benefit directly at all (e.g. may not have skills, or have health to do manual work), but may enter the economy by home-based or local support services (e.g. childcare). To enable such an economic ecosystem to be *equitable*, as many points of entry should be made available as possible (e.g. by backward and forward linkages), and many types of support should be provided (e.g. childcare training). The more imaginative the private companies and the government agencies are, and the more they can spend CSR funding effectively, the more equitable the outcome will be.¹⁷¹

Social tensions are likely to increase, often in unexpected ways. However, many of these communities currently have high levels of underlying social tensions already, which are not very visible, because the status quo remains intact. With a new project, the same tensions, or new tensions, will emerge. That is always the case in any form of material progress or change. Again, the crucial challenge is to ensure that institutional capacity is improved to deal with it, e.g. additional police (and better police management); more social workers; more family and community health facilities (e.g. better staffed clinics for family planning, HIV/AIDS management); and new youth training and enrichment facilities to prevent delinquency and teenage pregnancy.¹⁷²

Social identities may change rapidly. Local people who do get jobs on the new projects may soon develop a new identity for themselves, based on place and circumstances of work. Other cultural identities may take longer to change, or may even become reinforced (e.g. traditional-minded people who share a common dislike of the new developments). The strongest driver of new identities will be new workplace experiences, including blue collar workers (and trade unions), white-collar employees and sectoral service providers (e.g. transport contractors).¹⁷³

As boomtown conditions set in, communities are likely to experience different stages in their reactions.¹⁷⁴ Initially, officials and residents may be *enthusiastic*, as they look forward to the economic impacts of job growth and retail spending, while the possible negative impacts are either unknown or are dismissed as unlikely in their specific area. When the new workers arrive in noticeable numbers, the town may experience some *uncertainty*, and people begin to become aware of negative impacts. Divisions may emerge within the community as to whether the growth is detrimental or beneficial. As the changes speed up, the community may experience *near panic*, with people becoming confused and angry with one another. Government services are overwhelmed and quality of services declines; any prospects of increasing revenues look

¹⁶⁸ Jacquet, JB, 2009. Energy Boomtowns & Natural Gas, p. 24.

¹⁶⁹ Chapman, R et al, Resource development, local adjustment, and regional policy.

¹⁷⁰ Jacquet, JB, 2009. Energy Boomtowns & Natural Gas, p. 24.

¹⁷¹ This point was added in response to public reviewer comments.

¹⁷² This point was added in response to public reviewer comments.

¹⁷³ This point was added in response to public reviewer comments.

¹⁷⁴ Jacquet, J.B. 2009. Energy Boomtowns & Natural Gas, p. 12.

uncertain or remote. Finally, as the core problems are identified and planning or mitigation strategies are developed, the community *adapts* and accepts the reality of the situation.

Sometimes these phases can be experienced almost simultaneously, in different sectors of the community, creating a plethora of community responses which give rise to tensions and policy disagreements. Young people may face mixed impacts, with greater job opportunities, but also increased crime and overcrowding of schools. Marginalisation of local people can take place, on account of their lack of experience in the project activities.¹⁷⁵ Local government representatives may be caught up in this stressful environment, taking strong stands on different issues.

An influx of temporary workers (mainly young men with disposable income) can negatively affect community cohesion, increase the cost of living, and be associated with higher levels of alcohol and drug use, mental illness and violence. Such negative effects typically fall disproportionately on community members least able to bear them. An extensive literature¹⁷⁶ shows that boomtowns are often associated with higher mental health caseloads, crime, divorce, suicide and alcoholism, as compared to non-boomtowns.¹⁷⁷ Currently, local health clinics in South Africa are poorly resourced in dealing with mental health issues.

There are also potential security concerns. There are at least six kinds of crime-related risks potentially related to boomtowns:

- Crimes against property and people committed *by in-migrants* who cannot secure work – this could be against project staff as well as local people;
- Crimes against in-migrants (professional and unskilled workers) *committed by local people* who are unsuccessful in finding work, particularly if they are extremely unskilled or cannot hold down a job, and if they believe that in-migrants are “stealing their jobs”;
- *Domestic violence* caused by the disruption of sudden new household revenue streams, and poor spending habits of family members (e.g. excessive alcohol consumption);
- *Increased social pathologies* such as prostitution, in the context of many young men in the locality with income at their disposal. This, in turn, can lead to an increase in unwanted and teenage pregnancies;
- Crimes committed against in-migrants *by locals* as a form of xenophobia; and
- The increase in traffic and in-migrants may lead to an increase in livestock theft.

Local traffic, including scholar transport, medical transport, agricultural goods freight, tourism and other current road traffic will be severely impacted. We argue strongly for a rail link (Postmasburg to Boegoebaai) to be considered as an intrinsic component of the port project. Small towns in the study area will have to expand their traffic management capability significantly due to much greater traffic pressure and more violations.¹⁷⁸

Various mitigation strategies are possible, depending significantly on the capacity of policing and social support agencies. These are significant challenges.

Communities may be fairly adaptable to large-scale and rapid changes. Over time, communities are likely to experience significant shifts in their sense of contentment and social cohesion. This may initially take the form of declining social cohesion, but later they may evolve a greater sense of acceptance and a restoration of social networks.¹⁷⁹ The Transnet study proposed several CSI interventions, including the provision of community halls, libraries and sports facilities (see Appendix A).

Port Nolloth should be reserved primarily for project staff who are accompanied by their families. This will help to support the local schools, churches and other amenities. The Namakwa Spatial Framework made the following proposals for social development: Training centres in Okiep and Alexander Bay; “Soft outreach”

¹⁷⁵ Negi, R. 2014. ‘Solwezi Mabanga’: Ambivalent Developments on Zambia's New Mining Frontier.

¹⁷⁶ Jacquet, J.B. 2009. Energy Boomtowns & Natural Gas

¹⁷⁷ Raimi, D. 2012. The Potential Social Impacts of Shale Gas Development in North Carolina.

¹⁷⁸ This point was added in response to reviewer comments.

¹⁷⁹ Brown, RB et al, 2009, The Boom-Bust-Recovery Cycle.

(School awareness, stationary handouts, book donations); addressing the social ills of alcoholism; extending a local radio station signal; creating an SMME fund; and promoting sport, fishing, and livestock farming for subsistence and commercial purposes.

7.4.8 Economic support for local communities

The essence of a boomtown is that a large amount of capital suddenly enters local communities, and the prospects of jobs and money are multiplied, often to unimagined levels. However, this does not mean that all community members are employable in the new jobs, or can compete with in-migrants, or can manage the training processes required for such jobs.

Investment in economic projects, for individual entrepreneurs, SMMEs, NGOs or co-operatives, have the benefit of creating a more diverse buffet of livelihoods options for people with different talents and preferences. These should be tailored to local competitive advantages and suited to local skills and cultural knowledge, where possible.

The Transnet SEB Study has proposed several CSI initiatives, including community gardens, farmers' markets, support for mini-factories, promote technical skills training, and establishing an agricultural college (see Appendix A). For its part, the Namakwa District Rural Development Sector Plan (2023) has identified interventions such as using abandoned mining infrastructure for intensive agriculture development (aquaponics, hydroponics); a mariculture incubation centre at Port Nolloth or Kleinsee; constructing small-scale renewable energy development farms close to Farmer Support Units and other agro-processing plants; and wifi towers close to main fibre networks to improve communications with rural communities.¹⁸⁰

For each of these proposals, thorough consultations and analysis will need to be done in the community about the appetite and potential uptake of these projects. Where similar projects have been introduced elsewhere in the region, these should be visited to learn about factors to promote and those to avoid. It should not be assumed that, simply because a project makes sense in a consultant's report, that it is feasible in local conditions. Practical experience matters.

Support from other agencies may be available. The Township and Rural Entrepreneurship Programme (TREP) of the Department of Small Business works to overcome the legacy of economic exclusion in rural and township areas.¹⁸¹

To benefit fully from initiatives such as Boegoebaai, the business sector needs to be organised, with a structured relationship with government at various levels. This can take the form of Business Chambers in the towns, and also in the region; and the establishment of a Namakwa District Partnership with the District and Local Municipalities.¹⁸² They can work to promote the "ease of doing business" and removing non-essential procedures, forms, licenses and regulations that add to the cost of dealing with government, which tend to create costs and delays.¹⁸³

At this stage, the SEA can pinpoint the main "lines of inquiry" and possible trends. The longer the time period, the more hazardous any proposed trends may be, due to inherent instability of economic conditions, markets, demographic shifts, and political priorities. The risk analysis emphasises the points of concern (for mitigation) and possible benefits (which could be maximised by deliberate policy choices). We can, however, confidently state that the Boegoebaai projects would have a significant impact on social conditions, because of more investment, money and jobs, which would benefit some people more than others, and some people may face increased vulnerabilities (e.g. due to boomtown conditions). One can also state confidently that more tax revenue would be available to municipalities and the Provincial government, which could be used not only to provide safety nets, but also to enhance local people's ability to engage with the projects (e.g. by providing technical training and transport). There is never any guarantee that such tax revenue would be used constructively. At best, one can assert that the chance for constructive use of funds would be greatly improved if there is adequate oversight by other spheres of government, as well as participation of specialist organisations (e.g. SALGA, engineering bodies, etc). In a democracy, there is ultimately uncertainty about the

¹⁸⁰ <https://drdlrgovza.sharepoint.com>. Richtersveld LM, *Spatial Development Framework*, 2024, p. 70.

¹⁸¹ <https://www.sefa.org.za/products/township-and-rural-entrepreneurship-programme-trep-2>

¹⁸² DALRRD, *Namakwa Spatial Framework*, 2023, p. 66.

¹⁸³ DALRRD, *Namakwa Spatial Framework*, 2023, p. 58.

quality of public representatives that would be elected. One additional point of reassurance is that the proposed public participation process should **include political parties**, so that they develop experience and appreciation of technical, economic and management issues and options.¹⁸⁴

7.4.9 Recommendations

There is a great deal of literature and past wisdom which can be gleaned from other sectors, particularly mining, where social impacts of booms (and busts) have been intense.

Various mechanisms are available to bolster local resilience and avoid excessive harm to the social fabric. Unlike the closure of mines, there are unlikely to be such drastic “bust” consequences, as construction processes are likely to be lengthy and sustained over time. It is also possible that assertive upskilling efforts can enable construction workers to join the projects as permanent employees.

These include a combination of South African mining approaches (Social and Labour Plans (SLPs), Social Impact Assessments (SIA), Social Impact Management Plans, United Nations Guidelines on Human Rights, and industry standards on community engagement). In addition, various forms of collaborative governance at local level, where local interest groups can develop shared policies and programmes, will improve social networks as well as government capacity. However, in practice, many mining SLPs have proven disappointing in the past, and therefore their use should be undertaken carefully, in the light of good practice.

In the final section, we offer a range of practical suggestions, drawn from recent political science literature as well as a new Green Hydrogen Community Participation “toolkit”.

7.5 MACRO-ECONOMIC IMPLICATIONS OF THE PORT AND GREEN HYDROGEN COMPLEX

The Northern Cape economy has grown over the last thirty years, but the growth rate has been steadily declining. For the ten-year period between 2012 and 2022, the average annual economic growth rate was 1.2% per annum. In the latter five years (2017-2022), the average annual growth rate declined to 0.7% per annum. Fluctuations in the mining sector may have contributed to this decline.¹⁸⁵ The GDP of the Northern Cape is a tiny percentage of that of South Africa (about 2,2%).¹⁸⁶

The economy of the Richtersveld LM is still heavily dependent on mining (with a lack of beneficiation), community services, transport and agriculture/fishing (in that order).¹⁸⁷ This concentration (and the lack of manufacturing) brings economic vulnerability due to factors such as external economic fluctuations, international commodity price changes, and climate change. The overarching priority of the Northern Cape government is to promote additional development drivers through diversification, skills development, infrastructure development, optimised resource utilisation, the empowerment of vulnerable groups and investment attraction.¹⁸⁸ Crucially, this means that sectors such as industry, manufacturing and transport need to be prioritised.

7.5.1 The impact of the Port and Green Hydrogen on Namakwa economic sectors

Historically, the region is known for its livestock farming, alongside its mineral resources, with diamonds, copper, zinc, and other minerals. Increasingly, it is seen as an area rich in ecological, geological and cultural heritage, contributing to its tourism appeal.

¹⁸⁴ This point was added in response to reviewer comments.

¹⁸⁵ OTP, Memorandum to NCOP, 26 August 2024.

¹⁸⁶ Provincial Gross Domestic Product: Experimental Estimates, 2013-2023, www.statssa.gov.za.

¹⁸⁷ Richtersveld LM, *Spatial Development Framework*, 2024, p. 131.

¹⁸⁸ Northern Cape Government, *Provincial Growth and Development Plan*, 2019, p. 24.

Since the 1980s, the regional economy shifted from mining to almost all other sectors, thereby promoting some diversification. In particular, agriculture, trade, transport, finance, and government now comprise the bulk of the economy (a total of 58%; see Appendix B for sectoral details). Interestingly, construction remained very constrained, suggesting that hard investments in infrastructure and top structures have not grown much.

Namakwa district has faced a long-term economic decline, mainly due to the decline in mining. In 2018, the Namakwa District Municipality had a negative annual growth rate (-0.54%), compared to the South African GDP growth rate of 0.79%.¹⁸⁹ In this rather prosaic economic context, the Boegoebaai Port and GH2 industry will bring a huge injection of entrepreneurial energy. Compared to previous development sectors (diamonds and copper), the Port and GH2 projects will be large, sustained, complex, with a large spatial footprint, and will require a very diverse range of skills and inputs. It will create numerous multiplier causal chains, which will interact with one another in rather unpredictable ways.

The proposed Boegoebaai harbour is explicitly targeted at growing the regional economy: “A new port at Boegoebaai will be a significant direct investment in a sub-region of the Northern Cape which is currently economically depressed. The provision of the port and supporting infrastructure could create temporary construction jobs, a demand for raw materials and, tourism accommodation and support services. A range of new temporary and permanent jobs will be created which will result in significant long term permanent economic growth in the Northern Cape”.¹⁹⁰

The harbour will have several important components, all of which have implications for construction expenditures and employment, as well as long-term operations. This includes building the breakwater, dredging, berths, roads, internal rail, dry bulk and liquid bulk components. For the longer term, there will be administration and technical operations, managing storage facilities, security, and disaster management.

As noted earlier, forward linkages refer to the “product” of the port and Green Hydrogen scheme supplied as a material to another industry. For example, the railway would be available as an asset to local industries and farms, to transport their goods to international markets. Backward linkages refer to the demand for materials and services caused by the Boegoebaai projects, and will include food, household goods, housing and transport services supplied to workers.

The Transnet study has calculated the backward linkages of both the development and operational phases of the Port, combined.¹⁹¹ The most significant backward linkage is Manufacturing, followed by Finance and Business Services, Transport, and Trade and Accommodation. Government Services will be important, and should be understood as a greater demand for government activities, which will need to be paid for by the increase in taxes paid by the Port and Green Hydrogen Plant (see Appendix B for more data). The total value of backward linkages during the development phase is estimated at R2,3 billion, and R2,1 billion in the operational phase.

There will impact on Agriculture (around 2.5% of backward linkages), which seems fairly small, and is mainly related to food production for the new work force. This means that the impact on agricultural production is in the region of R60 million in the development phase, and R54 million in the operational phase. (Note that this calculation refers only to the impact of the Port, and not the Green Hydrogen dimension). Our agricultural section (below) expresses doubt about the likelihood of meaningful agricultural backward linkages.

Transport systems are likely to be impacted (and benefited) greatly, as backward linkages from the Port. This may well benefit local transport companies (goods and people, in terms of the new workforce). Similar, building and construction would also benefit local service and goods providers significantly. In contrast, the significant manufacturing backward linkages are likely to take place outside Namaqualand.

The Transnet report lists three types of industries connected to ports.¹⁹² Firstly, **port-required industries** such as, port management, port security, stevedoring, supervising entity for the maritime sector, freight forwarder, customs, tugs, dredging, shipowners, mooring services, ship chandlers, coast guard, port authority, etc.

¹⁸⁹ COGTA, *Namakwa District Profile*, n.d., p. 19.

¹⁹⁰ Transnet 2024, Boegoebaai Port Development SEB Report, p. 5.

¹⁹¹ Transnet 2024, Boegoebaai Port Development SEB Report, p. 19.

¹⁹² Transnet 2024, Boegoebaai Port Development SEB Report, p. 12.

These are companies that offer services needed for ships to trade goods. These industries are the focus of the impact assessment, including the development (construction) of the port.

Secondly, **Port-induced industries** refer to firms that import or export goods from the port, particularly mining and agriculture. They will benefit from lower transport costs and reduced processing time for cargo; they may also benefit from savings due to economies of scale and additional volumes. In our case study, this refers primarily to dry bulk goods in the mining and agricultural sectors. In the case of copper, the ore would come from the Namaqualand area itself; but many other mineral commodities will come from further afield (notably Aggeneys as well as the Kathu-Kuruman-Postmasburg mining complex). A further category would be liquid bulk products (diesel oil, green ammonia, e-kerosene, and methanol), also produced from further away. Finally, there would be containers for general cargo.¹⁹³

Thirdly, **port-attracted industries** including restaurants, hotels, offices, road and rail freight services, commerce, recreational boating, etc. These firms are part of the port economic cluster.

This SEA chapter focuses primarily on **Port-induced and Port-attracted industries**, i.e. the likely spin-offs of the Port (and GH2 complex).

The total investment of R13,6 billion on the port will increase total production in the country with **R27 billion**. Of this amount, about 45% or R12,5 billion will be experienced at the Port site and direct environment (such as quarrying sites). A large impact of “induced” **new business** can be expected, estimated at almost R13 billion. This represents significant multipliers in the region (Richtersveld, Springbok, as well as metropolises further away). In addition, the **multiplier effect of new business** will be massive, at R2.2 billion. For every R1 spent, another R2.20 will be generated by stimulating input industries.

Multiplier effects will be the highest as regards **New Business Development**. Due to the expenditure on worker income, an additional R1,5 billion of value will be created. **Total worker income** will generate R1,7 billion of value, and this will be largely spent on household goods and services, including food, clothing, furniture, housing, and education. Even though the entire sum will not be spent locally, much will be spent by unskilled and semi-skilled workers in the local area.¹⁹⁴

Taxes are also significant. Municipalities may well benefit from this rates income, but they will also be required to invest heavily in local infrastructure. **Regional broadband connectivity will be improved.**

After the robust construction phase has gone some way, the operations of the Port will commence. For a time, construction and operations will proceed simultaneously. During the Operations phase, the impacts will decline significantly, although it will remain sustainable in the long term.¹⁹⁵

By 2036, **New Business Development** will reach just over R4 billion, and after multiplier effects are calculated, this will reach almost R9 billion. Total worker income will also have declined, to roughly R0,5 billion, and after multiplier effects will reach an additional R0,14 billion.

The benefits of the Port will be unequally distributed between national (53%), provincial (38%) and local levels (9%).¹⁹⁶ The Transnet report maintains that the most important local benefits will be to wages, construction materials, consumer goods, mining (quarrying), manufacturing, transport and storage, and services. However, there are concerns about the responsiveness of local agriculture and food production systems to this increase in demand; most of the food will be “imported” from main centres such as Cape Town, unless innovative methods are used to stimulate local food production. The main agricultural linkages are likely to be felt in the Western Cape.

¹⁹³ Based on Transnet 2024, Boegoebaai Port Development Socio-economic Studies: SEB p. 14.

¹⁹⁴ Note that “Cost to Company” (“**Employment**” in the Table), refers to the perspective from the employer. This includes: Salaries and wages, Benefits (health insurance, retirement contributions, etc.), Payroll taxes, Training and development costs; Recruitment expenses’ and Employee-related travel expenses. **Worker Income:** This is the money that workers earn from their employment. It includes: Gross salaries and wages; Bonuses; Overtime pay; Commissions; Benefits received (health insurance, retirement contributions, etc.); any other compensation for their labour. **“Worker income” is therefore also included in “Employment”.**

¹⁹⁵ Transnet 2024, Boegoebaai Port Development Socio-economic Studies: SEB Report, p. 19.

¹⁹⁶ Transnet 2024, Boegoebaai Port Development Socio-economic Studies SEB report, p. 20.

Significantly, over time, the product mix of shipments at the Port will change. Initially, it will be more diverse, including general cargo, containers and agricultural produce. Over time, diesel imports, green hydrogen exports, and ore exports (mainly manganese, zinc, lead, ilmenite and magnetite) would upscale. This would be cheaper than transporting these commodities to Saldanha Harbour.

The current plan appears to be that *agricultural exports and general cargo would fall away by 2035, and copper by 2050*.¹⁹⁷ This seems a worrying assumption, since intensive crop expansion along the Orange River (an important economic diversification mechanism) may well expand *because* of a convenient and cost-effective export shipment opportunity at Boegoebaai. **Transnet's intention to phase out agriculture (and other general cargo) should surely be reconsidered**, as it would sacrifice important policy goals (such as promotion of innovative agricultural systems and products, agricultural employment, and food security). Agricultural role-players (Department of Agriculture, Agri-Northern Cape, producer associations) should engage Transnet in this regard. In particular, the large-scale irrigation agricultural production along the nearby Orange River would be a crucial export component, which would make our products much cheaper and fresher to export, compared to the current reliance on the Cape Town harbour.

The Northern Cape will also benefit from cheaper transport costs for diesel imports. This will benefit mining clusters at Aggeneys, Upington, Sishen, Postmasburg, Hotazel and Kuruman.

7.5.2 The importance of economic diversification and local preference policies

The key to Northern Cape future economic plans is sectoral diversification. Manufacturing, agro-processing, mining, beneficiation, energy (including renewable energy), tourism, the maritime economy and the knowledge economy will be the focus areas.¹⁹⁸ Digital innovation will also be key, and strategic partnerships will be prioritised.

Significantly, all these imperatives are impacted upon by the proposed Boegoebaai development. In several cases, the Boegoebaai project will stimulate these sectors directly (energy, mining, manufacturing and trade, infrastructure development, employment and skills development, innovation, and the marine economy).¹⁹⁹ In four other sectors, Boegoebaai could have positive impacts (agriculture and agro-processing, tourism, and rural development), although negative externalities will be felt most significantly in the tourism sector. Broadband telecommunications would be particularly important for the local business community.

The extent and nature of socio-economic benefits will depend at least partially on policy choices by government institutions (local and district municipality, influenced by provincial and national government). To some degree, it also depends on private sector consortium partners' approach to corporate social responsibility and community empowerment - although Government (at all levels) can provide guidance to private consortium partners on specific choices. The most directly relevant socio-economic benefit will be employment (ranging from manual to white-collar and technical jobs) and associated technical training or on-the-job upskilling.

A key question is the extent to which Government will require local recruitment and training effort, or whether jobs and skills will be mainly provided by in-migrants from elsewhere. This, in turn, will be affected by Government contract requirements, as well as the degree of co-investment by Government departments (e.g. Higher Education and SETAs), as a supply-side strategy. This will require political will at all levels, for example at National (higher education and training), Provincial (providing land for training institutions), District and Municipal (facilitating transport and housing for Namaqualand workers and trainees).²⁰⁰ The existing skills training system is definitely not adequate, as indicated earlier. Providing relevant technical skills for local or regional inhabitants will require a major expansion of the TVET College, as well as additional specialised training institutions, such as Disaster Management, Traffic Management, Construction and Community Health.

¹⁹⁷ Transnet 2024, Boegoebaai Port Development Socio-economic Studies SEB report, 26.

¹⁹⁸ Northern Cape Province 2019, Provincial Growth and Development Plan (PGDP) Vision 2040, p. 24.

¹⁹⁹ Northern Cape, Office of the Premier, p. 29.

²⁰⁰ This point was added in response to public reviewer comments.

7.5.3 Tourism

Since 2000, as the mining sector declined in Namakwa, it was gradually replaced by the tourism sector. The area is famous for the annual blossoming of the Namaqualand flowers in the Karoo Succulent Biome which transforms this semi-desert into an ecological fairyland. This spectacular show is confined to only a few weeks of the year. The promotion of tourism in the 'off-season' increasingly focuses on the unique features of Namaqualand's history, ecology, landscape and remote wilderness experience, including mine museums and mine tours, 4x4 routes, mountain bike and hiking trails, community camp and rest-house facilities and several nature reserves.²⁰¹

Tourism can be described as the total experience that originates from the interaction between tourists, job providers, government systems and communities in the process of providing attractions, entertainment, transport and accommodation to travellers. It is a social, cultural, and economic phenomenon that entails the movement of people, referring to domestic or foreign tourists.²⁰² This includes business travellers.

Tourism product development leads to the creation of innovative products, experiences, and services that tourists can buy and enjoy. Furthermore, such expenditures lead to economic multiplier effects, and there is a built-in incentive towards novelty, creativity and innovation.

The development of the Boegoebaai port may stimulate tourism due to improved access, but may also disrupt the current tourism product offerings.

7.5.3.1 Tourism in the Northern Cape²⁰³

The Northern Cape province is the least visited province of all South Africa's provinces in terms of international tourist arrivals, and mainly caters for South African and Namibian visitors. There is an increase in domestic tourism interest in this province, but the numbers are small in comparison to other provinces. The region does have untapped potential, which motivates a better understanding of the current tourism offering and the types of tourists attracted to the region.

7.5.3.2 The current offering in the study area

7.5.3.2.1 *The accommodation and catering sector of the Namakwa District*

The Namakwa District in the Northern Cape includes at least five well-known tourist towns: Springbok, Port Nolloth, Garies, Kamieskroon and Hondeklipbaai. More niche tourist offerings are available at O'Okiep, Steinkopf, and Kleinzee. The towns offer a variety of accommodation options for tourists, including guest houses, hotels, lodges, and guest farms.

²⁰¹ Hoffman, M.T. and Rohde, R.F. 2007. 'From pastoralism to tourism'.

²⁰² UN Tourism, 2024. Glossary of terms, <https://www.unwto.org/glossary-tourism-terms> ; Saayman, M. 2013. En route with tourism.

²⁰³ Namakwa routes. Available at: <https://www.namakwa-dm.gov.za/wp-content/uploads/2017/07/Experience-Namibia-Map.pdf> Accessed 20 October 2024.

Tourism enterprises and rooms in four municipalities²⁰⁴

	Tourism enterprises	Rooms
Nama Khoi LM	43	687
Kamiesberg LM	43	216
Richtersveld LM	22	157
Khai-Ma LM	10	136

The Richtersveld World Heritage Site as part of the product mix. The Namakwa National Park and the Richtersveld National Park have a significant number of accommodation facilities. A variety of catering options is available in Springbok, Port Nolloth and Garies. This reflects the amount of tourism traffic that comes through those towns. Self-catering accommodation is by far the most frequent type of tourist option, responding to the self-drive types of tourists (who are probably also budget-conscious) that explore this region.

The growing class of tourism providers is drawn from the cities, and has added a degree of sophistication and even cosmopolitanism to South African small towns. They have also created employment, often of a higher status and with higher wages than traditional small-town occupations. The slow but steady influx of “semi-grants” (people who move from cities to rural areas) has been stimulated by various factors, such as the architectural charm of many towns, as well as the opportunities offered by the hospitality, arts and crafts, and cuisine trades.

In particular, the standard of accommodation establishments has to be comparable with other towns and regions, and the online booking system tends to raise the benchmark, due to online reviews. To establish, furnish and operate such guest houses requires substantial capital, as well as a familiarity with tourist expectations. The “semi-grant” class of investors add value to tourist towns by restoring classic buildings, promoting neatness in the town, training staff, and undertaking innovative marketing.²⁰⁵

Domestic tourism represents roughly 76% of all tourism in the region. The region is remote enough to appear exotic to South Africans, but it is within a day or two of driving for almost all South Africans, making it fairly accessible. It is also not an expensive area to visit.

The predominant reason for travel in the Namakwa district is mostly leisure (48%), as tourists are drawn to nature reserves, the famous spring and wildflower reserves, hiking trails, amongst other areas of nature. These visits stimulate local economic multipliers when tourists spend on accommodation, transportation, attraction visits, and recreational activities.

Tourism in this region is on an upward trajectory. Tourism has the advantage of a low impact on the environment - in fact, tourists insist that the environment should remain intact and unspoilt. Tourism does not involve polluting industries, heavy traffic, stress or congestion. Tourists want to escape from urban crime, grime and traffic jams. It is therefore of cardinal importance that the Boegoebaai projects are planned in such a way that they do not obstruct the tourist pathways and corridors, or create an industrialised landscape. Sensitive spatial planning will be essential. An exquisite field of Namaqualand daisies will be fatally spoilt against the backdrop of wind turbines.

The fact that the region maintained a significant bed-night tally during the difficult COVID years (2020–2021) also suggests that a remote region, with a dry climate and sparse population, may appeal to people who are increasingly concerned about health and infections. These visitor figures are remarkable, given the limited extent of regional marketing. Features such as space, uniqueness, starry nights, local friendliness and safety can win much more market share.

The table below also suggests a slow but steady increase in bed-nights sold in the region:

²⁰⁴ Information in this section drawn from an unpublished NWU online hospitality survey, 2024, based on extensive web searches and using well-known accommodation booking sites.

²⁰⁵ Atkinson, D, 2016, Is South Africa’s Great Karoo region becoming a tourism destination?

Trips and bed-nights in four municipalities, 2019-2023²⁰⁶

	Bednights 2019	Bednights 2021 (COVID)	Bednights 2023
Richtersveld LM	81 000	46 000	82 000
Nama Khoi LM	249 000	148 000	249 000
Kamiesberg LM	82 000	52 000	84 000
Khai-Ma LM	60 000	42 000	59 000
TOTAL	472 000	288 000	474 000

After COVID, tourism in Namakwa District reached a new high - R1.1 billion in 2023. Richtersveld received about 22% of this spend (about R220 million). *Per capita*, this spend amounts to about R15 000 in Richtersveld and Kamiesberg, compared to R10 000 in Nama Khoi. This emphasises the centrality of tourism in Richtersveld, and the need for sensitive spatial planning and mitigation measures where required. Tourism development should remain a key developmental thrust, and not an afterthought.

7.5.3.2.2 The attractions in the Namakwa District²⁰⁷

Not many people live in the Namakwa region – which is part of its appeal. There is a palpable sense of remoteness, often untouched by human impacts and activities. This also means that tourism is not a mass activity in the region; typically, tourists travel in couples or small groups, eager to escape from densely populated cities.

Namaqualand is often described as the “Ocean and Flower Cluster”. A major attraction is the Orange River, one of the longest rivers in South Africa, separating South Africa and Namibia. The Cape-Namibia highway along the N7 highway means that Springbok, Garies and Kamieskroon are good overnight stops. The Namakwa flower season is currently the best-known attraction. The Namaqua bike camino (Bikamino) is a 470km route (10-day) route which cuts across the arid Northern Cape from Okiep to Hondeklipbaai.²⁰⁸

a) Richtersveld Local Municipality

The Richtersveld region, historically inhabited by the Nama people—a subgroup of the Khoikhoi—has a deep cultural heritage tied to semi-nomadic pastoralism and a rich array of traditions, including music, storytelling, and indigenous knowledge. The Namas' semi-nomadic lifestyle was built around the movement of livestock to different grazing areas in response to seasonal shifts (transhumance). Today, the Richtersveld National Park is one of the few places where the original Nama traditions and language have survived.²⁰⁹ The management plan of the Richtersveld Community Conservancy (RCC) includes infrastructure and tourism development.²¹⁰

The two main towns in this local municipality are located on the Atlantic seaboard, namely Port Nolloth and Alexander Bay. Port Nolloth has a small vessel harbour with fishing trawlers and is a good line-fishing area. The Port Nolloth Museum has a history of diamond and copper mining and the people of the region. South of the town is McDougall's Bay, popular amongst tourists interested in boating and fishing. Alexander Bay is the most north-western town in South Africa, next to the Orange River mouth. The estuary at the river mouth hosts a wide range of aquatic and bird species. The Orange River Mouth is regarded as the sixth most important coastal wetland in Southern Africa, because of the huge variety of bird life that it supports.²¹¹ The town has walking and cycling trails for visitors, while fishing and canoeing are important activities.

²⁰⁶ Data: S&P Global Regional Explorer.

²⁰⁷ The websearch included the following sites: www.namakwa-info.co.za/region, www.thegrowcery.co.za/, www.namakwa-dm.gov.za/b-municipalities/, www.sa-venues.com/north_cape_attractions_info.htm, khaima.gov.za/led-tourism/, www.experiencenortherncape.com/regions/namakwa-region/, www.namakhoei.gov.za/, www.kamiesberg.gov.za/, www.richtersveld.gov.za/.

²⁰⁸ <https://ridewithgps.com>

²⁰⁹ COGTA n.d. Namakwa District Profile, p. 6.

²¹⁰ WHC (World Heritage Convention). 2017. Richtersveld Cultural and Botanical Landscape.

²¹¹ Kamiesberg LM, *Spatial Development Framework*, 2024, p. 114.

In 1991, a part of Namaqualand, and one of the last true wilderness areas of South Africa, was named the Richtersveld National Park. In 2003, the Ai-Ais hot Springs Game Park in Namibia was combined with the Richtersveld National Park in South Africa, and this is now known as the Ai-Ais/Richtersveld Transfrontier National Park. Rooiberg Conservancy is located south of the Richtersveld National Park, forming almost a continuous ecological unit. This includes the Nababiep Nature Reserve in the neighbouring Nama Khoi Local Municipality.

The Transfrontier Park holds World Heritage status (declared in 2007) and is one of the richest areas of fauna and flora – situated in the Succulent Karoo Biodiversity Hotspot. It hosts 4849 species of succulent plants, of which 40% are unique to this area. It is also the only arid biodiversity hotspot in the world.²¹² In 2016, the international *Rough Guide* chose the stark beauty of the Richtersveld as one of the Top 10 places in the world to visit.²¹³ The estimated 350 000 Cape fur seals can be viewed at the coastal section of the Namaqua National Park.

The park is not financially sustainable, but it has the potential to improve its occupancy rates and offer additional products to visitors in future.. The primary development node remains the Sendelingsdrift rest camp, with limited expansion in the other areas. The main service route to the park is a provincial gravel road from Alexander Bay (about 80 km in length). The condition of this road affects the park and requires regular maintenance.²¹⁴

Since the WHS was declared, the border post between Alexander Bay and Oranjemund was opened, as well as the river crossing at Sendelingsdrift. This has made the Richtersveld more accessible to tourists. Tourists can now drive a circulate route through the Richtersveld, which would make the WHS a central attraction.

There are two culturally and historically significant towns in the Richtersveld. **Kuboes** is regarded as the heartland of Nama tradition, with mission history, and still practicing transhumant agriculture. There is a new identity and pride in the Nama language, culture, cuisine, and rituals. The village of **Eksteensfontein** will be an important tourism gateway to the WHS. Eksteenfontein is part of the Richtersveld LM, but actually forms part of the “Springbok Cluster” (as delineated in the Namakwa District Rural Development Sector Plan (2023)).²¹⁵ It would require a filling station and overnight accommodation, as well as an information centre, and a base for tourism operators (over-landing, cultural tourism, etc).

Promoting tourism in the communal lands area must be managed carefully. There are sensitive themes related to ethnic identity and historical land dispossession. These communities have been at the forefront of several legal battles related to land management, the declaration of the Richtersveld Park, and the restitution of Richtersveld land. The dictum must be that any cultural tourism planning should be deeply embedded in local engagement and consent, to prevent a shallow and over-simplified narrative being presented to tourists.²¹⁶

b) Nama Khoi Local Municipality

The main towns within the Nama Khoi local municipality are Springbok, Steinkopf, Vioolsdrif and Kleinsee. The town of Springbok is strategically located at the junction of the N14 and N7 highways. It is the regional capital of Namakwa district, and offers a variety of shops that draw people from the region. Besides shopping, the town also hosts two historical sites, namely the Blue Copper Mine, which was the first operational copper mine in South Africa²¹⁷, and Monument Koppie, a hill within the town commemorates the Anglo-Boer war of 1899-1902.

The Okiep mining town is close to Springbok and has a history of fascinating copper mining activities, as well as the famous Siege of Okiep in April 1902, towards the end of the Anglo-Boer War.²¹⁸ Nababiep has a mining museum and a narrow-gauge steam locomotive used for coal transportation. Close to the town, one

²¹² Richtersveld WHS (Richtersveld World Heritage Site). 2025a. <https://www.richtersveldwhs.org>

²¹³ Northern Cape, 2019, Provincial Growth and Development Plan: Vision 2040, p 114.

²¹⁴ Richtersveld LM Spatial Development Plan, 2024, p. 81.

²¹⁵ Richtersveld LM, *Spatial Development Framework*, 2024, p. 39.

²¹⁶ Boonzaier, E, 1996. Negotiating the development of tourism in the Richtersveld.

²¹⁷ <https://southafrica.co.za/1852-the-rise-of-the-namaqualand-copper-industry.html>

²¹⁸ <https://sahistory.org.za/dated-event/anglo-boer-war-2-siege-okiep-namaqualand-starts>

also finds the Goegap Nature Reserve (managed by the Northern Cape Department of Environment and Nature Conservation) that offers 4x4, mountain bike trails, birding as well as spectacular wildflowers during spring. The Helen Malan Flower Garden has a large variety of Namakwa succulents.

North of Springbok, on the N7, lies Steinkopf, which developed from a Rhenish Mission Station (originally Kookfontein) that was established on in 1821. The Mission church is a monument and also hosts the Steinkopf Art Gallery. The town forms part of the flower route and has a succulent nursery with a tea garden and various arts and crafts. There are several historical sites, such as the Klipfontein Anglo-Boer War graves, the mass grave of Nama children who were massacred at Kinderlê, and the ruins of the hotel. Steinkopf is located on the old copper-mining railway line, which offers much interest to railway buffs.

Further north, on the border with Namibia, are the towns of Vioolsdrif (the official border post) and Noordoewer. It is the starting point of many Orange River rafting adventures. This is considered one of the top ten adventures in South Africa.

Kleinsee, to the west of Springbok, is an old diamond town. The Kleinsee Museum includes diamond mining and the environment and history of the area. The Kleinsee Nature Reserve has more than 100 indigenous plant species. The town offers visitors the opportunity to see the largest seal colony in South Africa, as well as various 4x4 routes, such as the Shipwreck Tour, and a relatively easy hiking route.

c) Khâi-Ma Local Municipality

Pofadder hosts the Niemoller Museum, which tells the history of Pofadder and the Old Roman Catholic Church. Pella is well-known for its palm trees and dates and its beautiful cathedral, built by French missionaries. As one of the less touristic areas in the Namakwa region, Khai-Ma offers adventure activities, such as 4x4 routes, canoeing and hiking trails.

d) Kamiesberg

The Kamiesberg municipality includes the Namaqua National Park and the Skilpad Wildflower Reserve, offering an annual spring flower extravaganza with a large variety of plant and bird species, the Silver Sands trail and 4x4 routes. The coastal area is also a Marine Protected Area and the Spoegrivier caves contains the earliest archaeological evidence of sheep in southern Africa. The coastal town of Hondeklip Bay is especially important for 4x4 enthusiasts, fishermen and divers. The Aristeia shipwreck lies just south of the town. The first copper was exported from this harbour, before the rise of Port Nolloth as an export harbour.

Kamieskroon and its surrounding villages, Leliefontein and Nourivier, also offer mountain bike trails. Leliefontein was established as Wesleyan a mission station; the church and parsonage are national monuments. There is an important Boer War memorial.

e) Kai !Garib Local Municipality (Orange River upstream)

Although the towns of Upington, Keimoes and Kakamas are not part of the Namaqualand study area, the impacts on tourism along the Orange River will be severe, due to heavy ore traffic along the narrow riverside road. This traffic will impact on houses and businesses along this scenic route (marketed extensively as the Red Dune Route). Undesirable building developments will result, including an excessive number of fuel stations and truck stops. Negative consequences of trucking include road deterioration, traffic hazards, littering petty crime and prostitution. Years of tourism investment will be destroyed.²¹⁹

This is another reason why a rail link from the minefields to the coast must be considered *ab initio*, as part of the first phase of operations.

²¹⁹ This point was added in response to public reviewers.

7.5.3.2.3 Thematic attractions which may benefit from additional investment

Namaqualand offers a multiplicity of remarkable tourist themes, which can be enhanced by public displays, information centres, arts, crafts, merchandise, and theme-based accommodation or cuisine.

These tourism sectors include (see Appendix B for more detailed information):

1. Agri-tourism and on-farm attractions
2. Biodiversity, natural parks and protected areas
3. Indigenous San, Khoi and Nama history
4. Christian mission stations, including British, German and French
5. Copper mining
6. Diamond mining
7. Geology
8. Fishing, marine life, boating, and shipwrecks
9. Marine-based health and wellness, such as kelp baths²²⁰
10. Retail and craft industries
11. Transportation services.

Tourism regions take some time to reach a “tipping point”, when there are sufficient and sustained tourism offerings, of different types, to ensure a steady stream of visitors. Namaqualand has reached that point. It is becoming a destination in its own right, stimulated by favourable word-of-mouth, as well as a growing “curiosity factor” and “bucket-list status”, so that people in the rest of South Africa are taking special trips to the region. Unfortunately, the flower season is usually short (about two months per year), but the arid Atlantic coast and the desert remoteness are becoming attractions in their own right.

The next challenge is to lengthen the stay of tourists, so that they spend money for several nights (accommodation) and days (attractions, food and purchases), which is more financially impactful. The challenge, from the point of view of tourism developers, is to create sufficient products to offer variety, and to keep tourists in the area for as long as possible. Annual adventure events and cultural festivals will give exposure to the area and might encourage return visits.

Given the strong history of mining, the Nama people and the unique nature of this area, an **interactive interpretation centre** focusing on the unique selling points of the area as a hub will be of great value in attracting visitors. Springbok, the busiest town in this area, will be ideal, and add will value to all the museums in the district with selected upgrading.

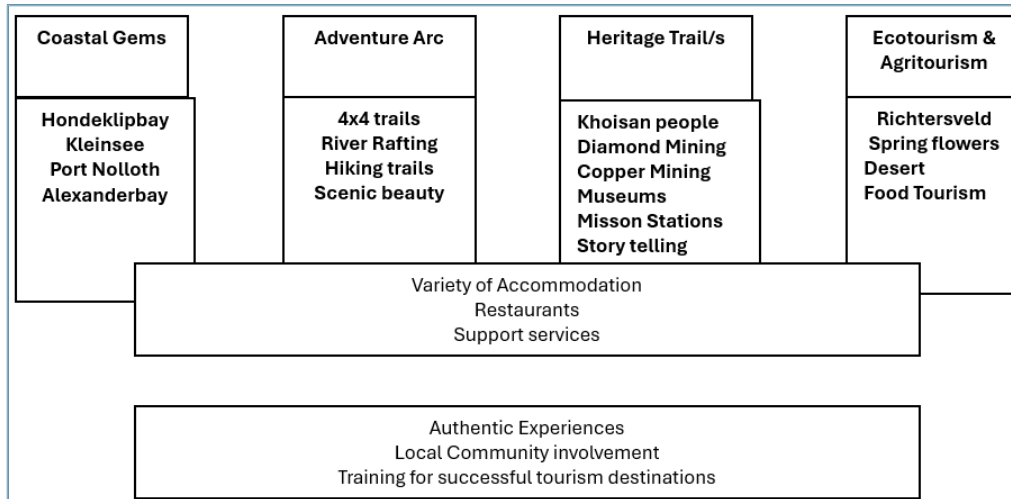
The Boegoebaai harbour could become a tourist destination in its own right, with trained guides explaining the development and functioning of these projects. The process of producing GH2 will also be an educational tourist offering as a new step in renewable energy production. Displays on international shipping can be featured at the Port.

Tourism routes can have a major impact, encouraging tourists to travel between sites. In all cases, these routes focus on a self-drive experience – they therefore provide a conceptual guide to what can be seen and done when travelling on these routes. At the moment, these routes are thus promoted on different websites but not are seldom managed by a dedicated team, as far as it can be ascertained. This highlights the current co-ordination problem that exist within the region of the proposed development. While “conceptual route guides” are useful, to orient the self-drive traveller, such routes become much more meaningful and effective once there is a management system comprising stakeholders who collaborate meaningfully with one another.

A possible composite marketing strategy for Namaqualand²²¹

²²⁰ Fourie and Oppel, Socio-Economic Baseline Assessment, 2024, p. 28.

²²¹ Developed by the tourism research team at North-West University.



Route development implies an economic injection for the whole area where different communities can tap into the supply chain – it also reduces seasonal slumps and brings hitherto unexplored sites into the tourism proposition. This expands the number and type of tourist service suppliers, ranging from well-established investors to small community-based organisations and even households. Furthermore, it promotes tourism products such as arts and crafts, which have low barriers to entry, but require a constant through-put of tourists to make such businesses worthwhile.

Namaqualand tourism can be promoted in several ways:²²²

- Branding Namaqualand as a single destination, perhaps in addition to Bushmanland
- Creating a Namaqualand Tourism Agency, to co-ordinate service providers, routes, and municipalities, under the auspices of the Namakwa District Municipality
- Focusing on specific “ports of entry”, e.g. at Springbok, with scheduled flights and car rental (see below for a fuller discussion of a possible airport expansion)
- Providing tourism training to school leavers in the area. The TVET college in Springbok can be expanded to equip residents with the skills to work in the tourism sector.

7.5.3.3 Challenges faced by the tourism sector in Namakwa district

Tourism in Namaqualand shares many of the inherent difficulties found in promoting Northern Cape Tourism: Vast distances, limited public transit systems, some rural roads are poor, and the lack of a regional airport with scheduled flights.²²³

As far as the Boegoeberg projects are concerned, it is important to pinpoint specific threats to this promising tourism trajectory. An industrial investment may bring the risk of infringing on sensitive tourist sites and viewsheds, over-development, traffic congestion, demographic shifts and uncontrolled in-migration. Accommodation facilities may be booked out for months or even years at a time. The new arrivals – contractors and technicians - will be travelling in commercial bakkies and trucks, whereas the current travellers tend to be in sedan cars and 4x4s.

In the context of the Boegoebaai projects, the “leisured atmosphere” will be a thing of the past in Port Nolloth, and to some extent in Springbok. Restaurants will be full of hurried project staff members, rather than offer a quiet, relaxing meal for travellers seeking an old-world ambience. Crime and lawlessness, even of trivial kinds (such as littering and begging), are likely to be a major disincentive for future tourism investors, and

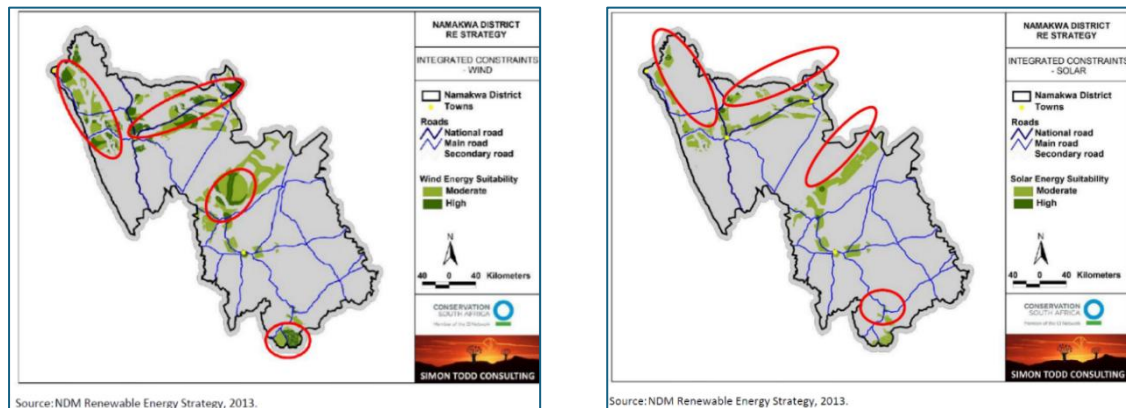
²²² DALRRD 2021, Karoo Regional Spatial Development Framework, p. 134. The entire Namaqualand can be marketed as multi-theme destination.

²²³ Northern Cape Government, Spatial Development Framework.

may encourage them to leave this region. There may be an increase in animal and plant poaching and attacks on tourists in isolated rural areas.

The Richtersveld will become an important site for renewable energy (both wind and solar).

*Areas earmarked for wind energy development (left) and solar energy development (right)*²²⁴



The proximity of these renewable energy zones to sensitive natural heritage and tourist regions is a source of concern. There must be a thorough effort to protect “viewsheds”, and to maintain Namaqualand’s sense of place as a remote desert region.

In the spatial planning process, it will be important to identify certain towns, such as Alexander Bay, as the primary project service towns, thereby keeping Port Nolloth and McDougall’s Bay primarily for tourism and local communities. Special-purpose accommodation should be built for employees and contractors, who travel without their families. These buildings could be converted to tourist (maybe back-packer) accommodation for sustainable future use. Where possible, existing guest houses should be reserved for professional staff and not technicians, artisans or labourers. (This will bring sufficient windfall gains to the guest houses, who may still be encouraged to enlarge their establishments, as a nett gain to tourism in the future).

The remoteness of the area is a significant attraction, and therefore, tourists do not want to see excessive industrialisation or heavy transport activities in this area. This requires a focus on viewsheds, i.e. directing industrial development away from scenic tourist vistas. The siting of industrial parks must take these considerations into account. This means that the planning of these parks must involve tourism stakeholders. Simply moving a project by a few kilometres can make a significant difference to the tourist impact.

7.5.3.3.1 Road and traffic management

The intensified road usage by the Boegoebaai projects has significant potential for clashing with tourism, and undermining this vital sector. The Namaqualand Spatial Framework warned about transport s of the Boegoebaai projects. Heavy industrial factories and manufacturing business in the district will increase the volume of heavy freight vehicles in the area.²²⁵ Key routes will be shared by tourists and Boegoebaai staff. On these routes, roads needed to be widened at several points to allow tourist and local users to overtake trucks easily and safely.

We should distinguish between trucks used in Port and GH2 construction, and trucks used for transporting ore from the Postmasburg manganese fields. The first category will pose significant challenges for tourism; the second type of transport will probably spell the death-knell of tourism in the Upper Namaqualand, Bushmanland and Green Kalahari region (Upington, Keimoes and Kakamas).

²²⁴ Richtersveld LM, 2024, *Spatial Development Framework*, 2024, p. 189.

²²⁵ DALRRD, Namaqualand District Spatial Framework, 2023, p. 104.

We make a categorical recommendation that ore transport to Boegoebaai should be done by rail, *ab initio*. The revival of Transnet, combined with strong private interest in running rolling stock, should make a business case for a possible *privately owned* railway line from Postmasburg to Boegoebaai. This can transport copper and zinc as well. Given that the life span of the manganese mines in the Kalahari is estimated to be over 100 years, this would be a sensible investment.²²⁶

It is useful to first identify the roads currently used by tourists:

²²⁶ See, for example, Tshipi Mine: <https://www.jupitermines.com/tshipi-manganese/tshipi/operations#:~:text=Tshipi%20is%20a%20shallow%20open%2Dpit%20mine%20situated,production%20remaining%20manganese%20mines%20in%20the%20world.>

Current main tourist thoroughfares

Traffic to Boegoebaai should skirt Port Nolloth on a specially-built bypass, to prevent ore trucks from travelling through the Central Business District. (Gqeberha has experienced heavy damage caused by ore trucks to urban infrastructure (streets, storm water drainage and nearby buildings).

The road between Port Nolloth, Boegoebaai and Alexander Bay will become very congested with industrial vehicles involved in construction of the Port. Ideally, there should be one substantial road for industrial use, and possibly an alternative, quieter road, which has more scenic appeal. Where possible, alternative tourist routes should be promoted, which avoid the main trucking thoroughfares. For example, the R382 will be particularly congested. Maintaining the R382 will be for the budget of the Northern Cape Province. There is already a concern that trucks are damaging the road.²²⁷



An alternative road would take tourists from Springbok to Kleinsee and then up the coastal road to Port Nolloth. This would benefit the more southerly coastal towns in Nama Khoi LM.

The Namakwa Rural Development Sector Plan has identified important road upgrading projects:

- The R382, linked with the N7. This will focus on linking Sendelingsdrift, Alexander Bay, the proposed Boegoebaai Harbour and Port Nolloth. This route will link to the N7 at Steinkopf. This route will be used for logistics (harbour), minerals and mining (ore transport), mariculture, and access to the World Heritage Site at Sendelingsdrif.
- Upgrading the coastal link road between Port Nolloth from the R382 to Garies (N7), via Kleinsee, Koinaas and Hondeklipbaai (202 Km)²²⁸

7.5.3.3.2 Taking logistics to the next level: Expanding aviation

Currently, the airport at Springbok does not have scheduled flights. All planes using the airport are private or charter. This means that there is no air travel available for an ordinary passenger. Consequently, also, there is no car rental in Namaqualand. Typically, air passengers rent a vehicle to move into the airport hinterland. This will be a major boost to tourism.

Even if flight tickets are fairly expensive, there would at least be a commercial class of passenger, particularly linked to the Boegoebaai projects, for whom it would be more cost- and time-effective to fly than to drive from Cape Town or Johannesburg. At a minimum, Cape Town-Springbok flights should be considered, but a Johannesburg-Springbok route may also be feasible at a later stage. In addition, smaller shuttles can fly from Springbok to Alexander Bay or Aggeneys.²²⁹

Airports are increasingly recognised as key assets for cities and regions as economic generators and catalysts of investment. Direct impacts of airports include multiplier impacts on the regional economy, stimulated by money spent at the airport itself. Indirect impacts may be generated from expenditures by airport users or from regional expenditures at local businesses, as a result of airport use or travel. There are also 'Induced or tertiary impacts' of an airport which unlock further investments in the region. 'Perpetuity

²²⁷ Richtersveld LM, *Spatial Development Framework*, 2024, p. 193.

²²⁸ Plan found at <https://drdl.gov.za/sharepoint.com>. Richtersveld LM, *Spatial Development Framework*, 2024, p. 70.

²²⁹ Government officials will benefit from flights between Springbok and Kimberley, but it is not clear that sufficient commercial traffic will be available to make it sustainable. One possibility would be a Springbok-Kathu-Kimberley route.

effects' occur when an airport shifts the regional production function upwards by changing the structure of the economy.²³⁰ Regional airports are considered to be of such strategic significance that many governments subsidise such airports.²³¹

Given that the Namakwa SEZ precisely aims at “shifting the regional production function upwards by changing the structure of the economy”, **it is almost inconceivable that the region would continue without scheduled flights.** The likely market would be “business tourists” (technicians and professionals working at Boegoebaai Port, GH2 project and renewable energy plants) who can also then fly to Alexander Bay on a shuttle service. It would also attract tourists who are “cash rich and time poor”, wanting to take rapid breakaways from Cape Town. An airport may well open up Namaqualand to international tourists, particularly if there are a few flights per week from Windhoek. Other typical sectors are local businesspeople, local people visiting Cape Town for holidays or education, and medical trips. The example of the busy little airport in Alice Springs in the Australian Outback (at least four scheduled flights per day) highlights the important role that aviation can play in stimulating regional economic growth in arid areas.²³²

Several government plans have hinted at the need to upgrade the Springbok airport, as well as more remote airfields in Namaqualand West. The Namakwa DDM Plan mentioned the importance of a regional airport. In the Provincial Spatial Development Framework, an airport is indicated for Springbok.²³³ The Namakwa Spatial Framework has indicated the possibility of an airport at Springbok, and various airfields situated at Alexander Bay, Kleinsee, Hondeklip Bay, and near Aggeneys.²³⁴ The same kind of proposal is made in the Nama Khoi Spatial Development Framework, focusing on the airport in Springbok (which is described as an “national/international accessibility node”) and the airfield at Hondeklip Bay.²³⁵

Air transport will also play a crucial role in the Boegoebaai development. The Namakwa Spatial Framework lists airfields that need to be upgraded: Springbok, Aggeneys, Alexander Bay, and Kleinsee. Furthermore, the Framework notes, “a new airport can be developed at an appropriate location in proximity of existing nodes and transport infrastructure”, and that this matter be further investigated.²³⁶ The Alexander Bay airport will add value to both the tourism and mining sectors.²³⁷

7.5.3.3 Protecting tourism in Namaqualand

The proposed Boegoebaai projects pose real dangers to tourism, due to the industrialisation and commercialisation of the area.

In particular, traffic congestion should be minimised. We argue strongly for a rail link during Phase 1, to manage the ore shipments. This will also help to mitigate against dust and noise. The only way to mitigate against the loss of the sense of remoteness (“sense of place”) would be through careful road and rail spatial planning, to direct transport routes some distance from the Port Nolloth village, and to minimise impacts on farmland.

The only way that such a rail link will be financially feasible will be by private capital. Currently, Transnet is in the process of bringing private railroad operators into South Africa. This is a massive shift in policy, and it may mean that a privately-owned railway link becomes possible. It is not clear whether Transnet or the private party will build the actual railway line. That will depend on the demand and price of manganese, copper, zinc and lead, and the profitability of the SEZ. All of these seem to be robust into the medium term.

The project is certainly likely to create more local jobs and incomes than tourism. However, the tourism sector is a valuable custodian of heritage and “sense of place”, and should therefore not be undermined. Concerted efforts should be undertaken to protect it from industrial encroachment.

²³⁰ Button, K, Doh, S & Yuan, J, 2010. The Role of Small Airports in Economic Development.

²³¹ Donehue, P & Baker, D, 2012. Remote, rural, and regional airports in Australia.

²³² Atkinson, D. 2016. Thinking regionally: Aviation and development implications in the Karoo region.

²³³ Northern Cape Government, Provincial Spatial Development Framework, p. 41.

²³⁴ DALRRD, Namakwa Spatial Framework, p. 118.

²³⁵ Nama Khoi LM, *Spatial Development Framework*, 2025, p. 31. 60.

²³⁶ DALRRD, Namakwa Spatial Transformation, p. 105.

²³⁷ Richtersveld LM, *Spatial Development Framework*, 2024, p. 18.

7.5.4 Agriculture

Agriculture is commonly defined as the practice of cultivating the soil, growing crops, or raising livestock for human use – mainly in the form of food or fibre. These products have economic value and jobs and livelihoods are created. However, agricultural activities not only have economic value, but may also have strong social and cultural significance.

Farmers are part of the larger economy and economy with many backward and forward linkages. The impact of agriculture in the district is enhanced due to its **backward linkages** (purchases of goods such as feeds, equipment, vehicles and fuel by livestock producers and fertilisers, chemicals, mechanisation, etc., by irrigation producers support many industries) and **forward linkages** (most agricultural products are delivered as raw products to various processing and manufacturing industries, creating forward linkages). In the case of Namakwa areas, these forward linkages are primarily felt outside the region; however, the distribution channels are important shops in the local towns.

As for the Northern Cape and Namakwa District as a whole, the contribution from agriculture to the entire economy is larger than for South Africa (roughly 10% of Gross District Product, compared to just less than 3% of South Africa's national GDP). In Richtersveld LM, the figure is about 6%, or roughly R96,8 billion in 2023 prices.²³⁸

"The history of Namaqualand agriculture is one of drought and isolation".²³⁹ Given the challenges of farming in Namaqualand, its productivity is remarkable. In addition to the normal aridity of the climate, the area has experienced catastrophic droughts, such as 1933, and in 1975-1983. During such hard times, production and incomes tend to decline dramatically. In 1986, Dunne found that the drought had reduced the carrying capacity of land in Namaqualand by half, which led to reductions in livestock as well as increasing farm size. Farms are generally capital-poor, and average employment per farm is low.

Nevertheless, livestock farming remains close to the heart of many rural households, not only for its practical significance for economic survival, but also because it is the strongest cultural link with ancestral generations of herders. As such, livestock agriculture – for coloured communal and white commercial farmers – have deep emotional and heritage significance.

During the last twenty years, sophisticated irrigation crop farming has developed along the Orange River. This is an entirely different economic proposition compared to extensive livestock production; revenues, incomes, are employment are much higher, and production takes place for the export market. These projects do not have the same heritage significance as livestock farming, but form a significant growth engine in the district.

In this agricultural assessment, these two streams of agricultural production need to be analysed separately. Almost no meaningful generalisations can be made between them, and they will be impacted very differently by the Boegoebaai projects.

7.5.4.1 The ecological potential and constraints of agriculture in the Namakwa region

Economically, the region remains reliant on agriculture, particularly livestock farming, but faces challenges such as droughts, land degradation, and water scarcity.²⁴⁰

Rainfall, temperature, elevation, and soil type are the main drivers of the unique plant distribution, abundance, composition, structure and biomass of the Namakwa district. Various soil types and the landscape's elevation and slopes, affect microclimates and water runoff, creating diverse habitats. This is

²³⁸ S&P Global – South Africa Regional eXplorer (2540), 2024 – 2023 data.

²³⁹ Dunne, JM, 1986, Towards a Regional Development Strategy for Namaqualand, p. 160.

²⁴⁰ Namakwa DM, 2023a. Municipality Vulnerability Assessment and Climate Change Response Plan; Namakwa DM, 2023b. Climate Change Adaptation Plan.

the basis of the extensive livestock industry. The region's climate is very diverse, with predominantly winter rainfall west of Springbok and predominantly summer rainfall east of Springbok towards the Bushmanland.

Rainfall is generally very low, between 60 and 120 mm per annum, while in the Richtersveld, with its predominantly winter rainfall, between 50 mm in the desert to more than 120 mm in the mountains (the Kamiesberg is an exception, with about 300 mm per annum). Along the coastal areas, mean annual rainfall can vary between 80 and 140 mm.²⁴¹ Sea fog and heavy dewfalls supplement the low rainfall substantially. Many plants in Namakwa have adapted to respond quickly to rainfall, often flowering and producing seeds shortly after rain events. In the north of the region and especially along the Orange River Basin, summer temperatures often exceed 40°C, causing extreme moisture loss in plants and the soil.

The two main water sources for agriculture include sub-terranean water pumped via windmills and solar pumps and the perennial Orange River to the north, bordering Namibia. Mountain run-offs are seasonal in nature, and alien vegetation encroachment along riverbanks is a real threat to this resource. The conservation of water resources is paramount to the sustainability of agriculture in the study area. The lack of water is probably the most serious limiting factor in agricultural expansion in communal areas. The use of stock watering points has made grazing control methods based on a system of fenced camps virtually impossible. Invasive tree species also encroach grasslands.

Virtually the entire region's soil capability is graded as Low or Very Low.²⁴² It is very difficult to mitigate the pressure on the environment by means of fodder production, because of the very limited availability of water (except along the Orange River). Generally, the soils in the central and western parts of the region are not suitable for cultivation.

Sustainable agriculture relies on environmental health and diversity of grazing. If sustainable stocking rates are not maintained, appropriate to rainfall in specific seasons, then veld deterioration due to overgrazing causes a decline in the ability of the land to support dense concentrations of stock. To survive in arid areas, farmers require large enough land, knowledge and excellent financial planning ability. Farmers that don't have this, tend to go out of production and sell their land to more viable farmers. Skilled extension services are almost non-existent, there is greater environmental pressure on the land. In the communal areas, access to markets and insufficient technical skills are limiting factors. This suggests that some members of the farming community may be receptive to changing to other forms of income, particularly young people growing on farms may choose to divert to urban careers.

Commercial livestock agriculture, especially cereal cultivation (and to a lesser extent livestock), has rapidly declined due to national and global economic conditions, improved transport networks and the cessation of agricultural subsidies. "De-agrarianization" is taking place, supplement partially by agri-tourism and eco-tourism. Conservation initiatives, many of them associated with the promotion of tourism, have gained momentum and large areas of agricultural land have been acquired as parks and conservancies.²⁴³

7.5.4.2 The scale of agriculture in the Namakwa region

Despite the constraints on agricultural production, the sector is one of the most important sub-sectors in the area and the second largest employer of labour. The study area has around 615 farming units (approximately 13% of the farming units in the Northern Cape (see Appendix B). Farming units are generally larger in Namakwa than in other Districts, because of the low grazing capacity of the land. Particularly for commercial farmers, producing at scale and as intensively as possible, this also increases the production cost per animal as compared to more intensive systems.

In the arid areas in South Africa, agriculture has generally been under increasing stress. While small stock historically has provided a source of economic growth, provided jobs, and supported rural livelihoods, the commercial agricultural sector has been in decline and maintaining economic viability is an ongoing challenge. This phenomenon is compounded by a 'cost price' problem (rising input costs, falling prices), and

²⁴¹ www.weather-and-climate.com

²⁴² DALRRD, 2018. Find source details.

²⁴³ Hoffman, M.T. and Rohde, R.F. 2007. From pastoralism to tourism.

may lead to more extensive practices, further compounding the challenges in remaining economically competitive.

7.5.4.3 Land ownership types in livestock areas

There is a significant diversity of land ownership types: Private, communal and municipal.

Agriculture has developed into two distinct sectors: Large-scale, well-capitalised commercial farmers, and small-scale, partially subsistence farmers. Both sectors are important for the region, where large-scale commercial farmers contribute to national food security (and therefore revenue in-flows into the district), while small-scale farmers are significant contributors to household food security in the local communities. The approaches to the management of these land tenure units vary significantly. In the study area, most of the desert biome is communally owned and part of land reform and restitution initiatives.

In practice, land management systems are complex and varied. Many commercial farmers also have farms in both winter and summer rainfall areas and apply a transhumance system where livestock is moved between these areas to utilise the best grazing opportunities.

Communal areas are based on allocations of cropping units, at the cost of an annual fee; they receive only user rights and not ownership rights. Farms on State Land and those bought from commercial farmers (through the Land Reform Programme) are farmed on a mixture of commercial, communal and subsistence principles. Some land reform beneficiaries farm at commercial scale.

7.5.4.3.1 Communal and commonage farming

Communal land and land reform farms have a deep bearing on not only the economic, but also the social profile of communities. The initial history of communal land tenure is derived from the time when contact was first made between the settlers and indigenous communities. Namakwa used to be inhabited by the San and Nama people. From the 1730s, settlers penetrated Namaqualand and the region was annexed to the Cape Colony, first in 1798 and then in 1847. The early settlers in the Cape encountered the San, Nama and Khoi, who were hunter-gatherers and pastoralists who moved from place to place. To various degrees, the local indigenous people resorted to violence to protect their water resources and hunting areas. That, too, was seen as an act of aggression against the colonial government. and land disputes were settled by means of force. Those Nama people who did not move to the Orange River to escape the wave of white settlement became impoverished, dependent on their new colonial masters, and were no longer able to live according to their tribal customs.

The Coloured Rural Areas (CRAs) date back to the establishment of mission stations, in the late 1800s, where indigenous people could live and farm unmolested by the growing number of white farmers in the neighbourhood. These areas form the basis of the current Communal Areas in Namaqualand – and in particular, the important case of Richtersveld CPA, where the Boegoebaai projects will be located. (Additional history is provided in Annexure B).

The post-Apartheid Government passed the Transformation of Certain Rural Areas Act (TRANCRAA), Act 94 of 1988, to provide for the transfer of communal land to municipalities or to legal entities such as Communal Property Associations (CPAs). The TRANCRAA process is meant to devise suitable land tenure systems for each of these areas. The CPA Act, no 18 of 1996, is designed to protect individual land rights within a group, through a constitution which sets out rules of membership and management.²⁴⁴ Henceforth, these land parcels could be owned and managed by the residents and users themselves, not a government minister.

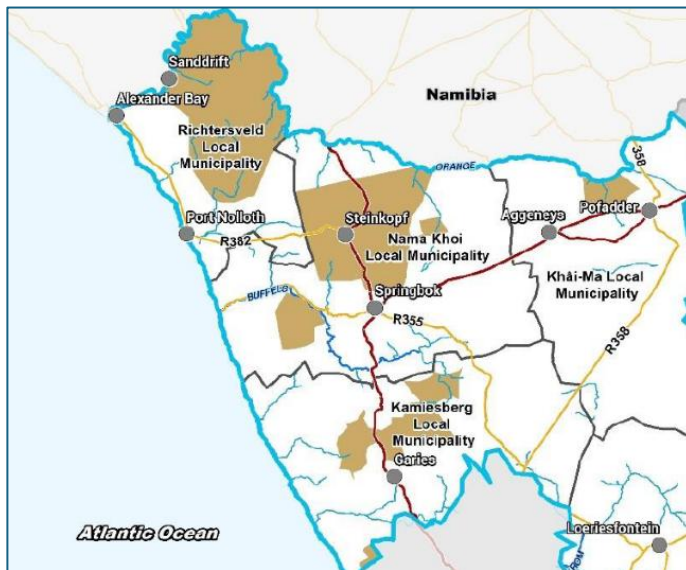
Trends regarding Act 9 Trust Land (TRANCRAA land)²⁴⁵

Region		Population	Hectares per capita
--------	--	------------	---------------------

²⁴⁴ DALRRD, *Namakwa Spatial Framework*, 2023, p. 64.

²⁴⁵ Dunne, J, 1986, *Regional Development Strategy for Namaqualand*, p. 20; DALRRD, *Namakwa Spatial Framework* (2023), p. 62.

	% of TRANCRAA land, 2023	1986	2023	1986	2023
Richtersveld	36 %	2 328	3 643	221	48
Steinkopf	31 %	5 725	7 822	56	56
Leliefontein	13 %	4 385	4 825	44	40
Concordia	8 %	3 439	4 564	18	26
Komaggas	6 %	3 129	4 927	20	18
Pella	6 %	1 509	4 092	32	20



The enlarged TRANCRAA areas²⁴⁶

The TRANCRAA tenure reform has been augmented by the Extension of Commonage programme, where land was procured by government, but title deeds were transferred to municipalities and not individuals. This is aimed at supporting livelihoods in the communal areas as well as peri-urban areas. On the “TRANCRAA land”, population has grown steadily over the last forty years. However, the hectares per capita have declined, due to the additional land purchases.

For the Boegoebaai project, it is significant that Richtersveld is the largest piece of “TRANCRAA land”, and the roughly 3 600 hectares in the Richtersveld LM today need to be incorporated into planning for Corporate Social Investment Projects. This will require an in-depth study and consultation with community members about their current livelihoods, needs, prospects and desired directions of development. (The dynamics of the “TRANCRAA land” are described in more detail in Appendix B).

Economic and agricultural development on the communal land has been retarded, for several reasons, including insecure land rights; limited access to inputs, finance and information; limited government support; inadequate working capital; inadequate or damaged infrastructure; poor farm management; and high competition in the industry. Efforts to address these challenges include land reform initiatives to restore land rights, improve land management practices, and support sustainable agricultural development. Some business plans have been over-optimistic, and others have been inadequate to enable emerging farmers to obtain loans.

The scale of farming on the communal land and the commonages varies from subsistence to semi-commercial; a few of these farmers own more than 800 sheep and can make a decent living from animal production; and some have even larger livestock holdings, indicating substantial wealth. The average farmer on the communal and state land owns fewer than 150 sheep and goats.²⁴⁷ This is partly due to shortage of land, but mainly a shortage of capital inputs, water and technical support systems. These farmers cannot afford construction and even maintenance of infrastructure, or genetic material, medicines and fodder. Many farmers previously worked on mines and have received small pensions, but most rely on state social grants. Many of their land allocations are too small, and they have lost the option of being able to return to communal land, and their agricultural experience is tailored to traditional knowledge with less dependence on technology and large capital inputs. Recurrent droughts cause livestock losses.

Today, farming in the communal is still part of a multi-income stream livelihood strategy. Livestock farming is often a post-retirement activity to supplement pensions. In many cases, pastoralists concentrate on keeping as many animals as possible (by selling and slaughtering animals only when it was necessary to buy

²⁴⁶ DALRRD, *Namakwa Spatial Framework*, 2023, p. 63.

²⁴⁷ B. Saal local extension officer DAELR, personal communication, November 28, 2024.

food and supply household meat) to reduce the risk of destitution. Pastoralists employ a range of risk-mitigating farming strategies (manipulating herd composition, spatial distribution and timing of grazing) to maximise the efficient harvesting of available forage and water resources. Livestock management also promotes social cohesion between farmers, in mutual help systems.²⁴⁸ The environmental challenge can also be improved by involving herders, employed by stock-owners, in decision-making about grazing distribution.²⁴⁹ There is a strong need for assistance to access markets.

As with communal farming, groups of small-scale farmers organise themselves around a water point from where animals are allowed to graze during the day and kraaled by night. These areas are often overgrazed on land close to towns. Animals are kept mostly for own family use and consumption, with periodically selling animals through an informal system in the community to generate some cash.²⁵⁰

For semi-commercial farmers, a low input-output system is followed with marketing mostly through cash sales within the community. This means that all tax systems are bypassed in the informal economy. Commercial marketing ventures are only used when required by some financial system, i.e. where loans are used and payments towards that is required. Farmers are price takers and not price makers. Most of the land reform farmers will make use of “speculators” who buy animal and “round them off” on pastures or feedlots. The main attraction to sellers is that speculators come to their farms, reducing the need for transport and saving on transport costs. In contrast to abattoirs, speculators pay cash which allows for bypassing of all financial and tax-related systems. This seems to be a cycle of poverty, where prices are kept low.

Given the prominence of TRANCRAA (“Act 9” or communal) land, a key question will be the future productivity of these areas, in terms of food production (mainly involving mutton and goat meat). The TRANCRAA areas received over 1,1 million hectares in land reform expansion, reaching a total of over 5 million hectares. If productivity can be enhanced in these areas, it could make some impact on local agricultural productivity.

A related question is whether the farmers in the TRANCRAA areas are “transitioning” from being communal to commercial farmers, and whether their land needs are changing. In other provinces, a policy of “stepping off” communal and commonage land and accessing private farming land, through land reform purchases, has meant that proto-commercial farmers can get a boost and start to operate on their own.

7.5.4.3.2 Commercial farming units and trends

The area under commercial farming has been reduced substantially since 1994, due to extensive land purchases under various land reform programmes. Each of these land reform or restitution cases has its own unique history, making it very unwise to generalise about future development options and strategies. Almost 35% or 1.8 million ha of the available farmland in the study area (the four Local Municipalities) has been or is in the process to be redistributed through land reform processes. (These land reform projects are detailed in Annexure B).

According to the 2017 Agricultural Census, there were 838 commercial farming units in the Namakwa District (from Survey-General data). According to Agri-NK, there are approximately 280 commercial farmers in the entire district (according to Agri-Northern Cape), which suggests that there are commercial farmers managing several farming units, possibly due to economic pressures. The Boegoebaai study area (the four relevant LM areas) only contributes approximately 20% of the agricultural gross value of the Namakwa District as a whole (the rest is in Karoo-Hoogland and Hantam municipal areas).

Livestock products are primarily mutton and lamb, with goat and cattle playing a lesser role. Most commercial farms are fairly well developed with camps and water reticulation that allows for better management of veld (rotational grazing and/or resting) and herds. In general, a higher input-output practise is followed with marketing through commercial outlets. Margins are tight, with economic models indicate expected income of around R520 000 per 100 LSU with farming cost around R430 000 per 100 LSU.²⁵¹

²⁴⁸ Hendricks, HH et al, 2004, Why communal pastoralists do what they do in the Richtersveld Park.

²⁴⁹ Michler, LM et al, Marginalised herders: Social dynamics and natural resource use in the fragile environment of the Richtersveld National Park.

²⁵⁰ Interview, local extension officer DAELR, November 21, 2024/

²⁵¹ DAERL Enterprise Budgets, 2024.

Marketing is done through commercial ventures, such as selling directly to abattoirs or selling livestock via agents. Such agents will also make use of local abattoirs, or transport animals to abattoirs in Gauteng. Slaughter numbers in the Northern Cape province decreased around 30% for cattle and 20% for sheep for the 5-year period up to 2022,²⁵² due to prolonged drought conditions, resulting in lower livestock productivity and higher mortality rates.²⁵³ Additionally, changes in livestock farming practices, such as adopting more sustainable and resilient farming methods, may have contributed to decreased slaughter numbers. In the formal commercial farming sector, farmers have reduced their herd sizes to cope with the challenging environmental conditions and to allow the land to recover.²⁵⁴

In general, there is also an increasing number of farms that get purchased by “non-farmers” from outside the province for lifestyle and recreational purposes, again reducing livestock numbers and slaughtering numbers. Many productive commercial farms that have been procured for land reform purposes, which negatively impacts production and slaughtering numbers. Furthermore, nature reserves have been expanded, with more land lost to agriculture.

The market is dominated by the supermarket retailers as local buyers of meat. They require a ZA-registration from abattoirs (abattoirs must comply with a basic export accreditation which adds to the cost factor). This gives the consumer better assurance that the product complies with best practices, but it all comes with a price tag which results in reduced producer prices and increased consumer prices. For the last three years, the bulk purchasing organisation KLK Landbou paid a zero premium on all its qualifying lambs (for registered and accredited producers and for lambs that meet a certain criteria), meaning that the farmers get zero additional return paid for meeting all the standards and requirements expected from them.²⁵⁵

This is also one of the largest factors driving the “informal market” in rural townships, where backyard or farm slaughtering takes place. This bypasses the cost of abattoirs. This means that the farmers get higher producer prices, while being able to pass on slightly lower prices to the consumer.

Although exports do take place (furs, carcasses, fresh meat and frozen meat) and good prices are achieved, the added production costs tend to erode much of the price benefit.

Live sheep imports are taking place from mainly Namibia and cattle from Botswana. This is also cyclical, due to veld conditions and droughts in those countries. Most of the live sheep imports from Namibia get slaughtered within the Northern Cape and this adds to the cyclical nature of slaughter numbers and the challenge to keep abattoirs viable. Over the last five years, there was a decline of almost 25% in registered abattoirs in the Northern Cape (from 50 registered abattoirs to 38 in 2024/5). The total registered abattoirs for Namakwa in 2024/5 are three high-throughput abattoirs (one in Springbok), five low-throughput and rural abattoirs (one in Pofadder) and one rural poultry abattoir in Kamieskroon. In the study area, one high-throughput abattoir closed in Springbok in 2023. Low-throughput and rural poultry abattoirs and rural game registered abattoirs decreased in total from nine to seven.²⁵⁶

There are fewer than 80 people employed on a full-time basis by the three abattoirs in the study area (the four Local Municipalities). Recent closures of abattoirs in Springbok and Calvinia suggest the challenges of abattoirs in an arid environment with big fluctuations in numbers of market-ready animals, due to dry and wet climatic cycles. The closure of abattoirs has several implications for commercial livestock production: It increases the distance farmers must transport their livestock for slaughter, leading to higher transportation costs and increased animal stress. The decrease in local abattoirs impacts small-scale farmers most, as they

²⁵² Red Meat Abattoir Association slaughter statistics.

²⁵³ Bahta, YT, & Myeki, VA, 2022. The Impact of Agricultural Drought on Smallholder Livestock Farmers.

²⁵⁴ Coleman, A. 2021. [Northern Cape sheep farmer's lessons from the drought](https://www.farmersweekly.co.za/animals/sheep-and-goats/northern-cape-sheep-farmers-lessons-from-the-drought/) (<https://www.farmersweekly.co.za/animals/sheep-and-goats/northern-cape-sheep-farmers-lessons-from-the-drought/>).

²⁵⁵ Yet accreditation remains important. Accreditation is linked to health and traceability systems, which are required for exporting mutton and lamb. If the farmers are producing according to higher export regulations, are they likely to get better prices for their meat, which would make them more sustainable in the long run. The export market keeps demand going and reduces the risk of major decreases in producer prices during periods of lower local demand. However, it takes time to develop these value chains.

²⁵⁶ DAERL unpublished Industries Report.

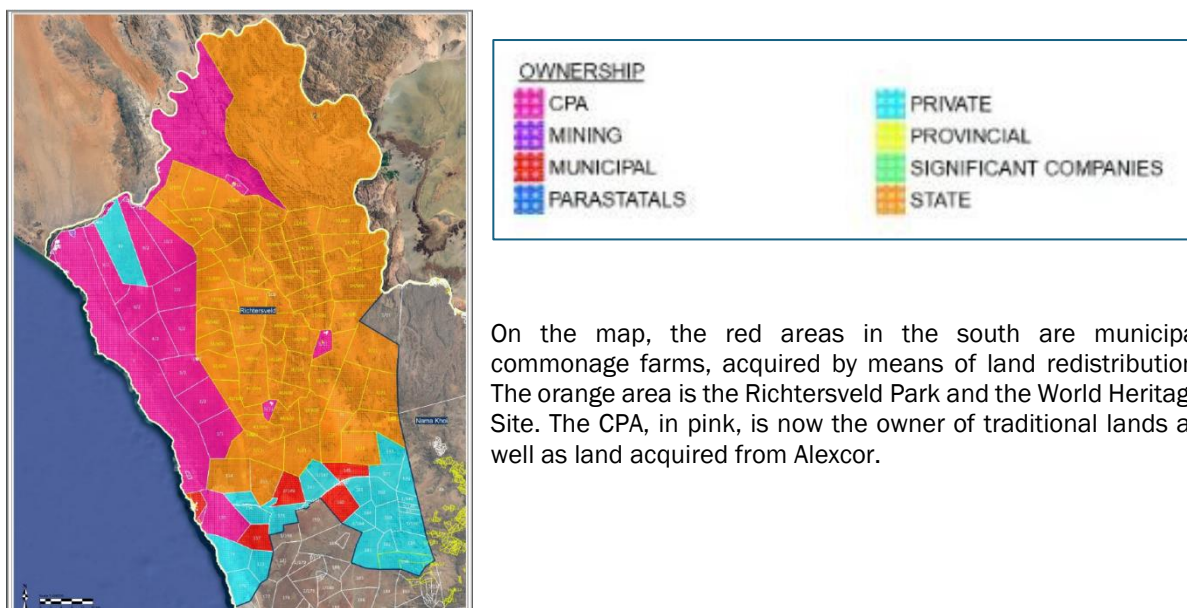
may find it increasingly difficult to access slaughtering facilities. There is therefore a negative cycle: Decreasing productivity on farms cause abattoirs to decline; if abattoirs close, then farming transport costs increase and farmers are under even greater pressure.

7.5.4.3.3 Land ownership in the Richtersveld jurisdiction

In the case of Richtersveld LM, TRANCRAA areas were extended by more than 400 000 ha by land reform purchases. Municipal commonages (mainly around Port Nolloth) was extended by more than 22 000 ha, in the south of the jurisdiction. In this area, no land reform was aimed at individual ownership, in contrast to other Namakwa municipalities where there was some land redistribution to commercial-level beneficiaries.

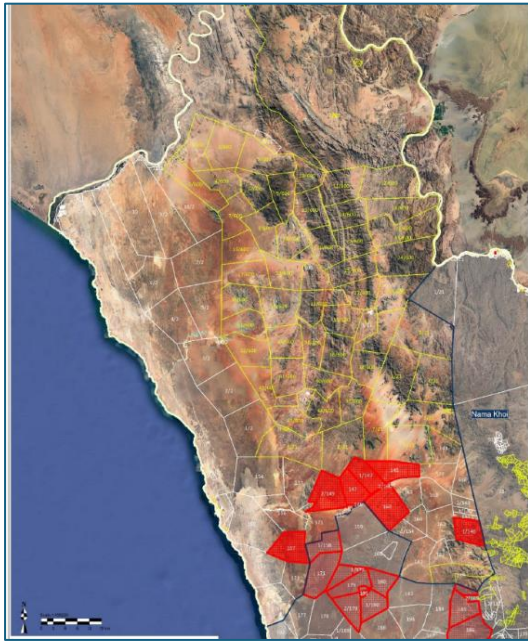
Land ownership in Richtersveld is complex:

Land ownership in the Richtersveld area: Richtersveld CPA, municipal, government, and private land²⁵⁷



On the map, the red areas in the south are municipal commonage farms, acquired by means of land redistribution. The orange area is the Richtersveld Park and the World Heritage Site. The CPA, in pink, is now the owner of traditional lands as well as land acquired from Alexcor.

²⁵⁷ Richtersveld LM, *Spatial Development Framework*, 2023, p. 157.



Land reform farms , marked in red, purchased for the Richtersveld CPA (communal area) ²⁵⁸

In the Richtersveld, the Department of Agriculture, Land Reform and Rural Development has transferred several pieces of agricultural land to the Richtersveld Community:

- Municipal land (about 12 430 hectares) located along the R382
- Portions of the farms Nieuwefontein, Nanassen and Riet Kloof
- Commonage land in the town of Port Nolloth (2 800 ha) is used by subsistence and emergent farmers for small-scale livestock farming, including goats, pigs and poultry.²⁵⁹

In terms of land restitution, the Richtersveld Community launched a land restitution claim in 1998, against the diamond mining company, Alexkor. This included compensation for diamonds extracted from it since the 1920s. The largest land restitution settlement agreement in South Africa was confirmed by the Land Claims Court in 2007. The Settlement Agreement was entered into between the Sida !Hub Communal Property Association (“CPA”), Alexkor and the Government of South Africa. Alexkor’s land mining rights, as well as agricultural and maritime assets were transferred to the Richtersveld Community, and R190 million as extraordinary reparation was to be paid to the Richtersveld Community’s Investment Holding Company.

The settlement entailed 194 600ha handed over to the Richtersveld community, including an 84 000ha coastal strip of diamond-bearing land currently being mined by the ailing state-owned Alexkor. The state made an "extraordinary reparation payment" of R190-million to a community-owned investment company, a R50-million development grant and also transfer Alexkor's farming operations to the community. Alexkor and the community entered into a joint mining venture, in which Alexkor holds 51% interest, to which the state will contribute R200-million in capitalisation. The mine-owned town of Alexander Bay was transferred to the community.²⁶⁰

Statistics about the number of farmers in Richtersveld vary. According to one source, there are about 42 farmers, farming with about 2 200 goats, 143 cattle and 1 300 sheep.²⁶¹ The relatively small number of farmers in the Richtersveld will probably facilitate ongoing interactions between them and the Boegoebaai

²⁵⁸ Richtersveld LM, *Spatial Development Framework*, 2024, p. 162

²⁵⁹ Richtersveld LM, *Spatial Development Plan*, 2024, p. 102.

²⁶⁰ Lawyers for Human Rights, <https://www.lhr.org.za/archive/news/2007/tears-joy-richtersveld-land-claim-settled.html>.

²⁶¹ DAELR Data Base, unpublished, 2020

authorities or other planning agencies. According to another source, there are currently about 153 communal farmers in the Richtersveld: Kuboes (31), Eksteenfontein (48), Lekkersing (29), Sanddrift (16), Port Nolloth (29).²⁶²

Communal farming is practised in large areas of these districts. Sheep production (usually a mixture of indigenous and commercial breeds) is still prominent, but goats and cattle tend to play a more significant role in communal areas than at commercial farms in the same area.

Subsistence farming is practiced around towns and villages, but further away, farmers operate on a semi-commercial basis, with shepherds looking after livestock during daytime and being kraaled at night. These farmers' transhumant lifestyle (migrating with livestock according to seasonal rainfall) has been severely curtailed by fences enclosing the diamond mines, making the entire area long the coast and along much of the Orange River inaccessible to the stock farmers. Transhumance still takes place, but to a more limited degree. It is important that a Grazing Plan is drafted so that people do not degrade the natural environment and heritage through overgrazing.²⁶³ In the light of climate change and possible increases in temperatures and droughts will make livestock farming even more difficult in future.

However, in recent times, many fences were removed by farmers and shepherds to facilitate direct routes to water points. The remaining water reticulation is in a very poor condition. Currently, farmers "organise" themselves around remaining water points, maintaining it for their own use. The result is that areas around water points are heavily over-utilized, while areas too far from water are hardly grazed at all, due to insufficient water and neglect of existing water infrastructure. Around villages such as Steinkopf and Leliefontein, the land is particularly degraded.

The relationship between grazing and environmental management remains a somewhat contested one in Richtersveld Nature Reserve, as well as other communal areas. There is evidence that the natural environment is being damaged near stock posts. Livestock movement patterns indicated that forage is the motivation for winter movements and water is the motivation for summer. On average, a pastoralist moved his animals six times a year between stock posts in a network of grazing routes.²⁶⁴ In 2005, a survey showed that all the 36 identified conservation-worthy sites in the National Park were threatened by livestock grazing. Management strategies need to find a balance between biodiversity conservation and livestock grazing. Effective management strategies could include zoning, closing some stock posts and careful consideration for opening new roads.

Farmers on state land along the Orange River rely mainly on the river as a primary source of stock water with only a few inland boreholes still functional. Profit margins are extremely low, and input costs are rising all the time. Farmers therefore rely on municipalities or national government to maintain infrastructure on State and commonage land through conditional grants such as the Comprehensive Agricultural Support Programme (CASP) and the Ilima Letsema programme, but this is generally insufficient.

7.5.4.3.4 The likely impact of the Boegoebaai project on livestock agriculture

The key question for the livestock industry is: Will meat consumption due to the operations of the Port and the GH2 project stimulate local meat production and marketing in the area? If so, will it gradually boost the commercialisation of agriculture, as farmers adjust their production and marketing strategies?

Currently most food is transported into the area by big retail chains via their centralized distribution networks to shops and supermarkets. This traffic might increase in the short term to cope with additional demand at Port Nolloth and Alexander Bay. Such highly concentrated value chains, which leaves few opportunities for small business to enter the value chain.²⁶⁵

²⁶² Richtersveld LM, *Spatial Development Framework*, 2024, p. 90. The reason for the statistical disparity may be definitional issues. This suggests the need for a thorough agricultural census to be undertaken in Richtersveld.

²⁶³ Richtersveld LM, *Spatial Development Framework*, 2024, p. 90.

²⁶⁴ Hendricks, HH et al, 2005, Movement response patterns of livestock to rainfall variability in the Richtersveld National Park.

²⁶⁵ Northern Cape, 2019, Provincial Growth and Development Plan: Vision 2040, p. 30.

Careful analysis of the likely impacts of the Boegoebaai projects suggest that these projects are not likely to stimulate *local* agricultural production (i.e. mainly meat production) to any meaningful level.

During the construction phase, 7 190 direct jobs will be created at the Port; after the construction phase, 420 full time jobs will be created. Between 6 000 and 8 400 people are likely to move into the Port Nolloth area, but this peak will only last for 2-3 years. The number of jobs resulting from the green hydrogen plant is uncertain, and it is likely that the demand for red meat will increase significantly due to higher incomes. Will this higher demand be met from mainstream supermarkets, accessing much of their product from the metropolises? Or will local farmers find new supply chains, either directly with consumers, or via independent butcheries, or even supply meat to some of the supermarket chains?

The answer to this question hinges on the extent of market domination by large retail chains, and the likelihood that local farmers will experiment with new marketing channels, given new levels of demand. It seems that the impact on local meat production will be very limited, for several reasons. Firstly, the sale of livestock by communal farmers is determined by numerous factors, including rainfall patterns, which are highly unpredictable: “The establishment of marketing systems that will maintain constant levels of stock sales in order to prevent herd growth is difficult to achieve”.²⁶⁶

Secondly, local sheep meat consumption is likely to decrease to less than 3% of local meat demand, while chicken will grow to almost 40%. This is due to the affordability of chicken as a protein source versus the significantly more expensive red meat products. The expected increase in food demand resulting from the industrial development may therefore be oriented to chicken rather than red meat. Thirdly, although the salaries paid by the Boegoebaai projects may push workers into higher income brackets (particularly locally recruited workers), it is doubtful whether their expenditure on meat (calculated at an average of 2 kg/person/ annum)²⁶⁷ will be sufficient to change the dominance of large retail supply chains.

7.5.4.4 Large-scale and commercial production

The Namakwa District Municipality is bordered by the Orange River to the North. Large areas of arable soil can be found on the banks of this river and the proximity to high quality irrigation water creates attractive opportunities for development of intensive agricultural development. Significant distances between production units together with good air quality, low humidity and high temperatures provides natural buffers for biosecurity.

Intensive commercial agriculture is very important in the national economy. In 2012, The National Development Plan 2030 (NDP) recognized the key challenges facing South Africa in order to eliminate poverty and reduce inequality by 2030. It identified agriculture and its value chain as a catalyst for radical socio-economic transformation and focus on job creation and decent work towards the year 2030. Its vision is to create close to 1 million jobs in agriculture and to reduce unemployment through expanded irrigated agriculture (by at least 500 000ha); revitalization of underutilized land in communal areas; supporting commercial sectors with highest potential for growth; and supporting job creation in the upstream and downstream industries. Being a flagship project, the Boegoebaai initiative may have a beneficial impact on large-scale irrigation farming, due to the provincial government placing pressure on municipalities, mines and producers further up-river to curb polluting activities.

Production of high-value irrigation crops along the Lower Orange River is a vital agricultural component of the Northern Cape Province. Farmers grow a variety of crops, including table grapes, citrus fruits, raisin grapes, dates and pecan nuts. These crops are chosen for their profitability and demand, mainly for international markets.

This is a high-profit, highly productive industry, and it creates a momentum towards re-investment. Expansion is currently limited by arable land with irrigation rights. Much of this land is held by communities along the

²⁶⁶ Hendricks, HH et al, 2007, Biodiversity conservation and pastoralism—reducing herd size in a communal livestock production system in Richtersveld.

²⁶⁷ <https://www.bfap.co.za/>

river, which could in future become available for intensive production. All of these commodities can benefit from reduced distances and transport cost that can arise from the Boegoebaai port development.

Depending on cultivar and seasonality, up to 4.5 tons of table grapes can be produced per hectare. In the 2024 season, 24.4 million crates of table grapes were harvested in the Lower Orange River region.²⁶⁸ Packing and branding is done in on-farm in cold store facilities, and are transported in refrigerated shipping containers to overseas markets. Most of these grapes are earmarked for export markets in Europe, North America and to a lesser extent, China. The Lower Orange River produced 80 000 tonnes of raisins in 2024. Most of this is produced for markets in Europe and North America.²⁶⁹ More than 24 000 ha of pecan nuts with a potential yield of 72 000 tonnes have been planted in the Northern Cape. These are mainly meant for export to China.

In the study area, table grapes are mainly being produced in the Khâi-Ma Municipal area on the South African side and at Hakiesdoring and Aussenkehr on the Namibian side of the river. Development costs exceed R 1.2 million per ha at current costs and will typically include soil preparation, drainage, plant material, trellising, mechanization, packing facilities and housing.

Dates are produced at Klein Pella, Hakiesdoring and Aussenkehr. Plant material is extremely scarce and expensive. Dates only come in full production eight to ten years after establishment and therefore significant capital is required for such ventures. Similar packing facilities and cold chain requirements are needed as table grapes and pre-packed fruit are also exported through ports in refrigerated shipping containers.

Raisin grapes and vegetables (mainly tomatoes and cucurbits, a type of pumpkin) are being produced at Vioolsdrift and Noord Oewer (Namibia). Most of these products are destined for local markets along the N7 from Windhoek to Cape Town.

In wet years, winter cereals are planted on 26 836 ha under dryland cultivation. Yields are generally low, and plantings are mainly meant for fodder production and as supplementary feed.

While insignificant in terms of land area, this intensive irrigation cropping offers a sustainable and reliable source of income to many families and contribute significantly to the agricultural economy of the study area. It also diversifies supply chains, particularly hardware and agricultural input suppliers in the towns, and functions as an important backward economic multiplier in the local towns.



The bulk of intensive irrigation cash-cropping is located in Khai-Ma LM (3 563 ha) and Nama Khoi (1 277 ha). In Richtersveld, only 408 ha are utilised for this purpose.

The area currently under cultivation in Richtersveld, to the east of Alexander Bay

²⁶⁸ South African Table Grape Industry, 2024. <https://www.satgi.co.za/>

²⁶⁹ Raisins SA, 2024. <https://raisinsa.co.za/>

Agricultural employment in the formal agricultural sector is particularly significant in Khai-Ma LM (944 jobs) due to irrigation farms. Nama Khoi LM has 638 agricultural jobs, while Richtersveld stands at 436.²⁷⁰ The irrigation activities in the Onseepkans/Pella area of Khai-Ma contribute significantly to agricultural employment, while a large proportion of the Richtersveld employment will be concentrated around the Vioolsdrift irrigation area. This figure is about 10% of the Richtersveld total employment, and has remained largely static between 1996 and 2023.²⁷¹

Partly due to the low population density next to the Orange River, in-migrant workers from mainly the Kuruman area are often used on the export table grape and date farms. This does impact on local economies in that salaries and wages are often spent elsewhere and does not fully benefit the local economies.

7.5.4.5 Community-owned irrigation projects

In several localities along the Orange River, community-based irrigation agriculture is being attempted (more details are available in Appendix B), based on the potential of fertile alluvial soils.

The two most proximate projects to the Boegoebaai area are Sanddrift and Richtersveld Sida IHub. **Sanddrift** lies 80km east of Alexander Bay. Its unique climate with its coastal influences makes this area highly suitable for the production of cash crops and even high-quality wine grapes. The Richtersveld Municipality is the caretaker of Sanddrift. The beneficiaries of this land are the Richtersveld community which consists of approximately 2 700 individuals, living in 4 small rural towns: Eksteenfontein, Lekkersing, Sanddrift and Kuboes.

The **Richtersveld SidaIHub** project is located on five farms near Alexander Bay: Dunvlei, Pagvlei, Beauvallon, Brandkaros and Arriesdrift. A number of irrigation farms were developed by the Alexcor mine along the banks of the Orange River in order to increase job creation and also produce food (milk, cheese, meat, vegetables, citrus and grains). Grains were mainly produced as feed for the ostrich and dairy production units. These farms were however highly subsidised via the lucrative mining enterprises.

The area has largely been denuded of its diamonds, and the mining operations have decreased markedly over the last five to ten years. The irrigation farms were alienated from the mines through land reform processes, but without the support and the subsidies from the mines, profitability has declined and it has reached a point where all production came to a complete standstill.²⁷² When Alexkor's agricultural and mariculture assets were transferred to the Richtersveld Community, the implementation of the Settlement was fraught with difficulty and conflict, resulting in all agricultural activities coming to a halt in 2008/9 and to the eventual liquidation of the Richtersveld Agricultural Holding Company.

BENESON Agri was formally appointed by the CPA in 2013 to revitalize the irrigation lands. However, barely 2 years later, BENESON Agri was liquidated and all the irrigation development came to a standstill yet again. During 2016, Agri Sol (Pty) Ltd was approached by the Richtersveld Community in their search for a new strategic partner to unlock the agricultural potential in the region. The owner is a commercial farmer that grew up in the area and is a respected vini- and viticulturist. Agri Sol (Pty) Ltd has been operating on the farm since 2017, planting grains, fruit and vegetables.²⁷³ Richtersveld Growers (Pty) Ltd ("JV") was established with equal shareholding between Agri Sol (Pty) Ltd (50%) and the Richtersveld community through the Richtersveld Property Holding Company (50%). The JV agreement was signed in December 2018. The JV leases the farming property from the community, with the main purpose of developing agriculture in the area and ensuring its commercial viability and long-term sustainability. There is an opportunity to develop 540 ha of the agricultural land to irrigate a number of crops. Thus far approximately 212 ha of the irrigation lands is under production. Products produced include raisins, potatoes, wheat, dry beans and maize.²⁷⁴

²⁷⁰ S&P Global Market Intelligence, 2023.

²⁷¹ S&P Global Market Intelligence, 2023.

²⁷² Alexcor Farms, unpublished report, DAELR, 2012).

²⁷³ Personal communication, Mr Mike De Neuilly Rice, 5 November 2024.

²⁷⁴ https://web.facebook.com/richtersveldgrowers/?_rdc=1&_rdr

Competition for water from the Orange River might impact this farming operation negatively, especially times of low flow. With increased demand for potable water from growing settlements as well as industry, this threat can be devastating to this agricultural operation.

This irrigation development lies closest to the proposed port and industrial development site and is likely to benefit most by planned infrastructure and possible service centres that might arise. Currently the closest irrigation-orientated mechanization services and input providers is located at Vredendal. Improved road and digital connectivity infrastructure will also be very beneficial for marketing and access to markets and input providers.

7.5.4.6 The potential benefits of the Port and GH2 for agriculture

7.5.4.6.1 Port infrastructure

The Boegoebaai Port will be an important export facility for these intensive crop-farmers, particularly to reach European markets and to shorten travel distances and time frames.

One of the main challenges of exporters of agricultural products from the Northern Cape Province is the distances to ports which results in relatively higher logistical costs when compared with its major trading competitors. Apart from this, there are also capacity constraints at existing ports leading to extended periods in transit as well as complications with cold chain requirements of fresh produce. This impacts directly on quality and shelf life of products.

However, according to the Boegoebaai Port Development Study by Transnet there is little potential growth in export or import of agricultural produce envisaged over the long term. Agriculture is expected to make up less than 2% of shipping volumes in 2028 and will disappear by 2035, due to the expected volumes of iron ore exports. Direct benefits for the agricultural sector will then become virtually extinguished. This will be extremely unfortunate for agricultural enterprises – having a port nearby and not available for agricultural exports. There should be a ring-fenced capacity at the Port which will continue to ship agricultural commodities in the long-term. This will serve the often-repeated purpose of promoting diversification from mining enterprises.

7.5.4.6.2 Local economic diversification

The induced economic benefits of the Port and GH2 projects will enable the local and regional economy to become more diversified, in terms of business services and technical support. Such services will also be to the benefit of farmers.

By stimulating economic growth generally, these projects will bring additional money into circulation, which will find its way into local agricultural purchases. These may be episodic and small-scale, but nevertheless will assist low-income families to get new funding streams.

Farmers may find opportunities to diversify or supplement their income by providing goods and services to the Port or engaging in complementary businesses, such as services, agri-tourism or eco-friendly initiatives. This would strengthen the trend towards multi-stream rural incomes, which promotes diversification and economic resilience.

7.5.4.6.3 Improved infrastructure

Improved road networks, particularly the N7 and N14 will assist the farmers to export their livestock and crops to markets in Cape Town and Gauteng. However, the intensity of truck traffic would be a dampener, due to truck accidents and unsafe travel conditions. If the roads are not maintained well by SANRAL, to cope with the massive increase of ore trucking, then poor road conditions would deter agricultural transport as well as tourist travel.

As argued in the Tourism section, a possible upgrade of the Springbok airport will also benefit farmers in terms of the rapid movement of small but high-value inputs and products.

The improvement in telecommunications (such as fibre) along the highways and to the Port and GH2 plants will be a benefit to communities *en route*. This network can then be expanded to surrounding towns and communities. It would be a major factor in overcoming the centuries-old remoteness experienced by Namaqualand. The beneficial impacts to young people, educational institutions and health services providers would be immense. It would also stimulate new rounds of “semi-grant” investors from the metropolises.

7.5.4.6.4 Promoting agriculture through CSI

Various strategic and practical proposals have been made to strengthen agriculture in the Northern Cape in general, and in Namakwa in particular. Furthermore, various socio-economic initiatives have been mooted for support by the Port, and by implication, possibly by the GH2 projects. There is already support in official strategies for promoting such agricultural development, diversification and intensification. It would be crucial to create synergies between such proposals.

It will be important to optimise agricultural opportunities in the region, and support the establishment of small-scale farming activities, agri-enterprises and agriculture-led industrialisation. This will foster productive regional-rural development, and enhance food security.²⁷⁵ Agricultural skills development is crucial, as well as developing crops and livestock genetics that are less vulnerable to climate change.²⁷⁶ One intervention that may yield significant fruit is to focus on women farmers, ranging from survivalists to those starting to grow their own herds and flocks, and with a particular focus of strengthening multiple livelihoods and supporting diverse household economic strategies simultaneously.²⁷⁷

The Provincial Growth and Development Plan has highlighted programmes which will support agriculture, including Farmer Support and Development, Sustainable Resource Management, Veterinary Services, and Agricultural Economics. The agro-processing sector will be a strong focus, with its high potential for employment.²⁷⁸ Other initiatives will include upgrading infrastructure (marketing information, markets, electricity, transport, storage, abattoirs, and dams); upskilling agricultural workers (there is currently no agricultural college in the Northern Cape), value chain development, smart climate investments (e.g. solar panels), and research stations. Similarly, COGTA’s *Namakwa District Profile* is optimistic about the prospects of agriculture, in terms of high-value irrigation crops along the Orange River; sheep farming (wool and mutton); and agro-processing in the form of high-value aquaculture, such as abalone.²⁷⁹

Land reform projects need assistance, such as training, market information, management practices, and trade relationships.²⁸⁰ These initiatives need to consider research that has already shown the importance of “pluri-activity” (farming as one of a suite of income streams). Pluriactive systems may require different types of support, in particular different types of extension services”.²⁸¹ In addition, agricultural and land reform programmes should assist large commonage and communal farmers to “step off” from this land and access their own farms, where they can farm commercially. This model has already been tested in other provinces, such as the Free State.

The AgriParks programme aims to assist farmers through mechanisation centres and Farmer Production Support Units, with the necessary machinery, equipment and inputs. The 2023 Namakwa Spatial Development Framework highlighted the importance of the Springbok abattoir, as an anchor for an Agri-Hub or Agri-Park (more details are provided in Appendix B).

The challenges associated with agricultural support programmes should not be underestimated. The arid environment and poor soil quality affects animal and crop farming activities, limiting the sector’s economic

²⁷⁵ Richtersveld LM, *Spatial Development Framework*, 2024, p. 34.

²⁷⁶ Richtersveld LM, *Spatial Development Framework*, 2024, p. 66.

²⁷⁷ Kleinbooi, K and Lahiff, E, 2007, “Die man is die hoof en vat voor”: Women’s attitudes to land and farming in the communal areas of Namaqualand.

²⁷⁸ Northern Cape, 2019, Provincial Growth and Development Plan: Vision 2040, p. 28.

²⁷⁹ COGTA, *Namakwa District Profile*, n.d., p. 20.

²⁸⁰ Northern Cape, 2019, Provincial Growth and Development Plan: Vision 2040, p. 29.

²⁸¹ Anseeuw, W and Laurent, C, 2007. Occupational paths towards commercial agriculture.

viability. Another difficulty is the loss of technical skills in agriculture-related departments, and consequent under-spending in such departments.²⁸²

The Namakwa District Rural Development Sector Plan (2023) has identified possible agricultural projects, such as Goat or sheep handling facilities and feedlot at Eksteenfontein, to improve livestock feeding, and animal drinking troughs in more remote areas to lessen the grazing pressure around existing watering areas.²⁸³ The Namakwa SDF has proposed an irrigation project in Sanddrift, to stimulate employment, as well as other irrigation projects in the Richtersveld CPA, and the Richtersveld LM Spatial Development Framework proposes a Wildlife Economy Zone, as well as an abattoir at Port Nolloth.²⁸⁴ In all these cases, in-depth feasibility studies will need to be undertaken, and conditions can differ greatly in different towns and districts.

7.5.4.6.5 Biodiversity through CSI

The Namaqualand landscape is renowned for its globally important and abundant biodiversity (primarily plants, reptiles and insects). Rangeland degradation is a growing threat to large areas and is expressed through lowered groundwater tables and reduced water quality, soil erosion and decreased soil fertility. Furthermore, climatic changes (e.g., changes in precipitation, CO₂ levels) and anthropogenic activities (e.g., mining, infrastructure development, and social pressures) contribute to rangeland degradation.

In areas away from livestock watering points, pockets of vegetation have remained protected from animal husbandry and remains an important resource for seed. Where possible, highly degraded veld should be rehabilitated and the variety of species that naturally occurred in the ecosystem should be re-established for the ecological functioning of the area to be restored. Active rehabilitation is often the only way to improve the quality of veld in these areas. This requires technical expertise and is costly, but there is already a valuable literature on this topic in the Karoo. However, these efforts are often inadequate due to funding constraints.

With the increase in local income and investment through industrial development, there may be opportunities to invest in environmental restoration and conservation projects. Furthermore, as part of the CSI efforts of the Port and GH2, particularly in the Richtersveld and Nama Khoi areas, there may be funding mechanisms to offset environmental impacts and to invest in environmental technology and innovation. New techniques to revive local vegetation have been tested, and could be used to restore degraded rangelands and mining areas;²⁸⁵ this may also offer job creation opportunities to local people, and an opportunity for ecological education and training. Community-based nurseries can propagate seedlings for rehabilitation projects.

7.5.4.6.6 On-farm Green Hydrogen use

The development of an industrial port near agricultural production areas can offer several potential advantages for intensive farming operations, such as those along the Orange River. Modern agriculture is carbon-intensive, and the global food system, from fertilizer manufacture to food storage and packaging, is responsible for up to one-third of all human-caused greenhouse-gas emissions.²⁸⁶

Hydrogen is also a key component in the Haber-Bosch process, which synthesizes ammonia from nitrogen. Ammonia is then used to produce nitrogen-based fertilizers. The adoption of green hydrogen technologies can spur economic growth in rural areas by creating new job opportunities in hydrogen production and distribution.²⁸⁷

²⁸² Northern Cape, 2019, Provincial Growth and Development Plan: Vision 2040, p. 29.

²⁸³ Plan found at <https://drdlrgovza.sharepoint.com>. Richtersveld LM, *Spatial Development Framework*, 2024, p. 70.

²⁸⁴ Richtersveld LM, *Spatial Development Framework*, 2024, p. 233.

²⁸⁵ Simons, L and Allsop, N, 2007, Rehabilitation of Rangelands in Paulshoek, Namaqualand; Carrick, PJ and Kruger, R, 2007, Restoring degraded landscapes in lowland Namaqualand.

²⁸⁶ Thornton P., 2012, Recalibrating Food Production in the Developing World:

²⁸⁷ Kleperis, J. et al, 2021,. Hydrogen supported bioconversion of biogas CO₂ to upgrade biomethane in fuel for vehicles.

Farmers can also potentially benefit from carbon credits or incentives for adopting greener practices associated with the hydrogen economy.²⁸⁸

The presence of a cutting-edge industrial facility may encourage research and development initiatives that could benefit agriculture, such as innovations in sustainable practices and resource management. Public and private agricultural organisations can partner with the Boegoebaai GH2 project to test new on-farm innovations.

7.5.4.7 Potential risks posted by GH2 to agriculture

A new port and industrial development at Boegoebaai will be a significant direct investment in the region which is characterized by poverty and lack of employment. This initiative has the potential to not only create jobs on a direct level, but can stimulate other economic drivers such as construction (industry and human settlements, tourism and support services.

Establishing a port and industrial plant near agricultural areas can pose opportunities and risks to farming operations. Agriculture (crop farming) could benefit at household level by enhanced desalination facilities linked to Green Hydrogen; some of this water would be available for household use, which can then be used as grey water for local household agriculture. The crop agriculture along the Orange River is unlikely to be affected. Land degradation is not a significant risk for livestock farming; however, ecosystem degradation may be caused by noise and dust along the highways. Once again, a rail link would reduce traffic-related impacts. Local communities could raise the importance of this matter in negotiations.

7.5.4.7.1 Water: Household and Port water supply

Water infrastructure is not addressed as one of the main port development elements,²⁸⁹ and it is assumed that the water demand of the port and associated new settlements, will be addressed using existing natural resources. Currently most of the towns and settlements of the study area rely on potable water from the Orange River. Water shortages occur during dry spells when upstream demand increases, and the flow of the Orange River is low. This situation will escalate when expansion of farming as described earlier in this report commences.

A key mitigation factor may be the proposed Noordoewer/Vioolsdrift Dam (NVD) on the Orange River between Namibia and South Africa. A feasibility study was undertaken in 2015 by Namibia and South Africa under the auspices of the Permanent Water Commission. The purpose of the dam will be to serve as a re-regulating and/or storage dam to improve water resources availability in the Lower Orange River system, while supplying ecological water requirements (EWRs), domestic, industrial, mining and irrigation water requirements. The construction of this dam will offer opportunities to supplying the growing water demand from the agricultural, domestic, mining and energy sectors.

For GH2 production, it is almost categorical that there is no local water available in this arid environment for industrial uses, and desalination will have to be utilised for GH2 production. The prospects of desalination projects were discussed earlier.

7.5.4.7.2 Dust pollution

One of the biggest threats to biodiversity today is sand and dust storms.

Dust pollution due to ore shipments at the harbour is a major hazard. The port and industrial zone of Saldanha Bay transports iron and manganese ore. Dust emission, transport, and deposition play several

²⁸⁸ Paviour SJ., 2014, Carbon sequestration and trading potential in semi-arid South Africa; Rybchak O. et al, 2024. A Fine Line Between Carbon Source and Sink.

²⁸⁹ Transnet, 2024, Boegoebaai Port Development SEB report.

critical roles, affecting land degradation, climate, the environment and public health.²⁹⁰ The visible emission of dust from the ore raises concerns for public health.²⁹¹

In the Transnet strategic plan, iron ore will continue to be shipped to Saldanha, while other ore types (such as manganese) will be steered to Boegoebaai Port, presumably by road. Manganese also creates dust, which affects public health, as experience in Gqeberha has shown: “The manganese ore is often transported without sufficient coverage (tarpaulins), and fine dust is released directly into the air while the trucks carry it to and from the warehouses. Strong winds easily disperse this dust throughout surrounding areas, choking the air with thick clouds and making visibility difficult for motorists and pedestrians.”²⁹² Fruit exporters tend to refer to the Saldanha port as a “dirty port”, and not conducive for the export of agricultural products.²⁹³

Dust fractions in shipping containers are monitored by The Perishable Products Export Control Board (PPECB), an independent service provider of certification and cold chain management services for producers and exporters of perishable food products. The main export fruits from the study area (table grapes and dates) are packed on-farm in dust proof closed vented, refrigerated shipping containers. However, a portion of the already packaged produce is transported in cold trucks, and pallets are transferred to refrigerated shipping containers at the port.²⁹⁴ Since the shipping containers need to be dust free, this can create a window of pollution impact. Other products such as citrus, which is grown in the lower Orange region around Kakamas, are transported in partially vented shipping containers, and dust will be a big problem.²⁹⁵

The dust is not only a problem for fruit exporters. In Gqeberha, dispersed manganese dust and ore falling from trucks onto the roads and pavements increase the mineral concentration in the soil and nearby waterways. Long-term exposure creates adverse ecological conditions for the growth of plants and other living creatures that take up the mineral, and the quality of resources in these areas decreases. Animals in these areas may suffer from respiratory and visual issues, and the hides of farmed animals are contaminated with thick layers of dust. High manganese concentration in drinking water and food also impacts its taste.²⁹⁶

Shipping ore by road, in particular, brings major risks. It would involve hundreds of big trucks, laden with dust-producing manganese; air pollution caused by diesel trucks churning up the roads, blocking traffic; dangerous traffic conditions and traffic accidents; potholes causing deaths and damage; trucks thundering through small towns (e.g. Keimoes and Kakamas); a lot of roadside services that become hubs of crime, prostitution and littering; and destroy agricultural and tourism assets. This road would have to go from Postmasburg to Upington, then along the "Green Kalahari Route" (Keimoes, Kakamas) to Pofadder, then through Springbok, then just past Steinkopf, then over the scenic Anenous pass to Port Nolloth, then through the town, and north to Boegoebaai.

The dust and ore pollution would imperil agricultural transport (quality of produce). It would destroy many tourism enterprises along the way.

7.5.4.7.3 Waste management near the Boegoebaai plant

The production of ammonia and methanol generates waste and often involves the use of catalysts and other chemicals that can be toxic or harmful to the environment, potentially contaminating water sources and soils during production and transportation, if not handled properly. In case of continuous discharge or leaks into water bodies, this may represent an immediate danger to not only aquatic life, but livestock depending on sub-terranean water, with subsequent impacts on the livelihood of communities depending on it.

²⁹⁰ Vos HC, et al, 2024, Spatial variability of dust concentration and deposition around an industrial port in South Africa
²⁹¹ <https://mg.co.za/news/2024-10-07-residents-of-saldanha-bay-say-red-dust-from-transnets-ore-terminal-is-staining-their-homes/>

²⁹² <https://www.dailymaverick.co.za/article/2022-05-30-gqeberhas-role-as-key-port-for-export-of-manganese-comes-with-high-environmental-and-health-costs/>

²⁹³ Interview, P. Karsten & D Duvenhage, Karsten Boerdery, November 6, 2024.

²⁹⁴ Interview, L Hanekom, Southern Farms, personal communication November 7, 2024.

²⁹⁵ Personal discussions with export farmers from the study area, November 6, 2024),

²⁹⁶ <https://www.dailymaverick.co.za/article/2022-05-30-gqeberhas-role-as-key-port-for-export-of-manganese-comes-with-high-environmental-and-health-costs/>

To mitigate these air pollution risks, it is of utmost importance that all the specifications and conditions stipulated in the various Environmental Authorizations that will be required, be adhered to during and after the construction phase.

7.5.4.7.4 Air pollution and noise due to trucking (i.e. vehicle emissions)

Air pollution may be the most significant impact caused by large-scale trucking, in the form of greenhouse gasses generated from burning diesel. This is already experienced in Gqeberha, in the light of manganese and ore trucking.²⁹⁷ This will affect rural and peri-urban farmers, in terms of the health of their animals.

7.5.5 Mining

The closure of the diamond mines at Alexander Bay and Kleinsee will have ripple effects for years to come. In both cases, there was a lack of planning for diversification of the local economies – despite decades of warnings in the international and South African mining policy literature. “Like death and taxes, mining closure is certain”.²⁹⁸ The implications of the lack of economic diversification are made even more severe due to South African policies of “open mining towns”, whereby employees were encouraged to become home owners; when mines close, these assets become almost valueless. The closure of mines are extremely disruptive to local communities. (In contrast, fly-in-fly-out arrangements in other countries do not promote families’ attachment to the mining locality, and therefore are much less disruptive when mines need to close). Mines’ Social and Labour Plans (SLPs) have often remained ineffective in planning for these radical changes.

The dire consequences of economic and social disruption often have to be managed by municipal and provincial governments, who are not prepared for such challenges. This is the difficult process of “normalisation”, when mine-owned towns have to become re-oriented to democratic government and management, with an entirely new set of fiscal arrangements based on local rates and service charges.²⁹⁹

Economic diversification is often hampered by a range of factors, such as resource price volatility, higher wages in mining areas, production linkages that benefit only the larger urban areas, and mining-related institutions that erode regional and local decision-making. Mines create specific types of economic geography over time, with including specific types of infrastructure, human and institutional assets, local styles of leadership, and the role of the state. This creates “path dependencies” that are very hard to re-orient to new types of economic investment. Turning a local or regional economy around calls for sophisticated planning, information sharing amongst stakeholders, and using an incremental planning process to evaluate progress, rather than a dogmatic steering approach.³⁰⁰ In the case of Namaqualand, the Namakwa District Municipality will, inevitably, be responsible for creating such a new institutional ecosystem.

Yet mining still forms an important sector in Namaqualand.

In 1977, a validation study of a zinc deposit at Gamsberg (80km from O’kiep) was undertaken. The project was owned by Anglo American Corporation (45%) and Newmont Mining and O’kiep Copper (27.5% each). It was deferred in 1976 due to the depressed state of the zinc market. The Gamsberg site was expected to yield 350 000 tons of zinc concentrates per annum.³⁰¹ In 1978, the project was put on hold until the zinc market strengthened.

Today, Vedanta Zinc International has invested at the Gamsberg Zinc Mine, and will build a smelter within the Khai-Ma Local Municipality. It will be the anchor investor of the proposed SEZ at Aggeneys.³⁰² Zinc prices

²⁹⁷ <https://www.dailymaverick.co.za/article/2022-05-30-gqeberhas-role-as-key-port-for-export-of-manganese-comes-with-high-environmental-and-health-costs/>

²⁹⁸ L. Marais, 2023, The Social Impacts of Mine Closure in South Africa, p. 4.

²⁹⁹ L. Marais, 2023, The Social Impacts of Mine Closure in South Africa, p. 40-55.

³⁰⁰ L. Marais, 2025, Planning for post-mining economies: Misconceptions and opportunities.

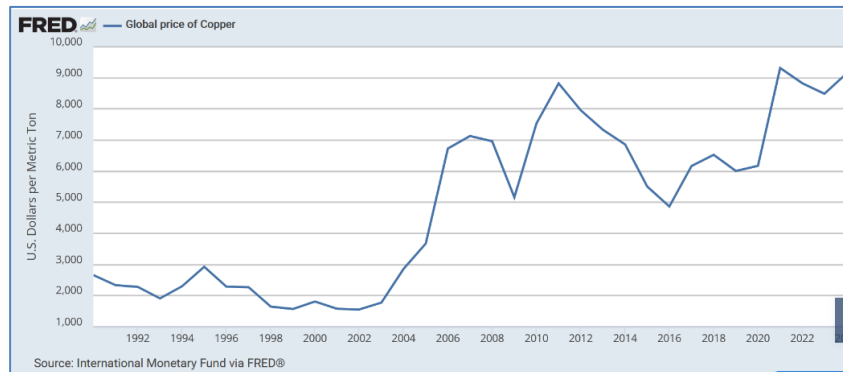
³⁰¹ Dunne, J, 1986, Regional Development Strategy for Namaqualand, p. 138.

³⁰² COGTA, Namakwa District Framework, n.d., p. 31.

are estimated to return to higher levels.³⁰³ Employment in the Vedanta lead and zinc operations, will be about 2 000 in the short and long term.³⁰⁴

The long-term trend for copper prices is generally upward, driven by factors such as increasing demand for copper in green energy projects, potential supply imbalances, and economic conditions in major regions like the US, China and Europe. Nevertheless, the Transnet study indicated that copper is likely to employ between 50 and 70 people in the short term (before 2030), but by 2050, those jobs would have fallen away.³⁰⁵ Copper resources were said to be virtually infinite, with those at Carolusberg (the deep ore mine) relatively untouched. The future of copper mining therefore depends entirely on the exchange rate, copper demand, and the copper price.³⁰⁶

The price of copper in US\$, 1992-2022



Power demand is set to double through 2050. This will happen amid a shift away from fossil fuels and thermal generation capacity and a move towards more renewable power. Much of renewable power generation is copper-intensive – indeed, electrification cannot happen without it.³⁰⁷

This is an important insight to take forward in the region, and planning for the railway and port, particularly in the light of the EU's CBAM principles (Carbon Border Adjustment Mechanism), which incentivises low-carbon transport systems for exports. Copper 360 is currently mining good quality surface ore in Namaqualand,³⁰⁸ A more detailed investigation of copper prospects in Namaqualand is required.

The Richtersveld community won an important stake in the diamond industry in the successful land restitution claim. It will be important to consider the longer-term potential of diamond mining in the area. The current view is that the outlook for diamond production in the Northern Cape remains muted, due to several factors: Diamond miners are unloading excess and lower quality diamonds; polished prices are in continual decline; there is a slowdown in diamond demand; and there is a growing interest in laboratory-grown diamonds, which would require natural diamond miners to undertake better niche marketing for their product.³⁰⁹

In the latest COGTA Namakwa District Framework, alluvial mining is proposed as focus projects at Port Nolloth and Hondeklipbaai.³¹⁰

A separate issue, which requires much more investigation, is the current wave of illegal small scale mining in Richtersveld. Mining can cause severe, long-term environmental damage, which can be injurious to health and livelihoods. The negative externalities of mining need to be understood, minimised, and carefully managed so that local communities are not left to fend for themselves, especially once the mining is over

³⁰³ Northern Cape, 2019, Provincial Growth and Development Plan: Vision 2040, p. 34.

³⁰⁴ Transnet 2024, Boegoebaai Port Development Socio-economic Studies SEB report, p. 36.

³⁰⁵ Transnet 2024, Boegoebaai Port Development Socio-economic Studies SEB report, p. 36.

³⁰⁶ Dunne, J, 1986, Regional Development Strategy for Namaqualand, p. 145.

³⁰⁷ <https://www.woodmac.com/news/opinion/copper-rush-a-strategic-analysis/>

³⁰⁸ Simon Brown, **Copper 360 revels in finds of high-grade surface deposits, 1 March 2024**, <https://www.moneyweb.co.za/moneyweb-podcasts/moneyweb-now/copper-360-revels-in-finds-of-high-grade-surface-deposits/>

³⁰⁹ Northern Cape Government, *Provincial Growth and Development Plan*, 2019, p. 34.

³¹⁰ COGTA, Namakwa District Framework, , p. 31.

and mines have closed.³¹¹ As the country's attention turns to Boegoebaai and the Richtersveld, this issue will need to be addressed at municipal, district, and national level (the Department of Mineral Resources).

7.6 INSTITUTIONAL CAPACITY IN THE REGION

The Namakwa district, located in the arid Northern Cape region of South Africa, has been shaped by both colonial legacies, apartheid, and post-apartheid developments. The region is primarily inhabited by the Nama people, the largest Khoikhoi group, with a history of dispossession and violence dating back to the early 20th century.³¹²

7.6.1 Institutions in flux: The political and social context

Following the end of apartheid in 1994, the establishment of the Namakwa District Municipality was part of broader administrative restructuring to ensure equitable service delivery and local governance. Local municipalities within the district, including the Namakwa DM itself, often struggle with inadequate resources and have been the subject of national and provincial efforts to improve infrastructure, access to services, and local economic development.³¹³ The shift towards green hydrogen and renewable energy is seen as a potential way to revitalise the region's economy, but it must contend with the socio-political legacy of the past.

The community's involvement in decision-making processes remains a critical issue. Many local communities, particularly those with a history of marginalisation, are concerned about the impact of industrial developments on their land, livelihoods, and rights.³¹⁴ Without effective engagement, these projects risk replicating the same inequities that characterised previous development patterns in the region. Mitigating the risks of social tension would require a multifaceted approach that balances economic growth with the preservation of agricultural livelihoods and community well-being. This will require municipalities with adequate skills and resources, as well as inclusive planning processes, ongoing stakeholder engagement, and collaboration between industry and the local agricultural community.

Involving local residents in decision-making processes can help ensure that their needs and concerns are addressed. Promoting agricultural innovation, access to markets, and support services can enhance the resilience of farming communities, helping them adapt to changes brought by industrialization. Investing in infrastructure that benefits both farming and industrial sectors, such as roads, infrastructure, and broadband internet, can enhance overall community resilience. Politically, local governments struggle to meet the needs of marginalised communities, with political divides and a growing demand for more inclusive governance, particularly regarding land use and resource management.

In the Northern Cape, rural municipalities have faced multiple and sustained challenges of governance, administration, staffing, and financial management. Richtersveld, Khai-Ma and Kamiesberg municipalities are classified as represent “moderate to high distress” in the Richtersveld, Kamiesberg and Khai Ma Local Municipalities. Richtersveld LM, in particular, is in the category that “none of the four critical competencies are achieved”, referring to planners, engineers, accountants and environmental officers.³¹⁵

From an institutional point of view, this is not a promising area to implement two very sophisticated infrastructural and industrial projects. This is an urgent signal that the municipalities will have to undertake a quantum leap in terms of their management capabilities. This will require concerted action by a range of support agencies.

³¹¹ DALRRD, *Namakwa Spatial Framework*, 2023, p. 57.

³¹² Robins, S. 1997. 'Transgressing the borderlands of tradition and modernity'; Rawson, K, 2018, Rawson, K. 2018. *Land rights & identity: the establishment of the Leliefontein Mission*.

³¹³ Nama-Khoi Municipality. 2024. Local Economic Development Strategy: 2024- 2029.

³¹⁴ Human, L. 2024. Diamond mines everywhere but Richtersveld town battles poverty.

³¹⁵ DALRRD 2021, Karoo Regional Spatial Development Framework, 2021, p. 66.

7.6.2 Municipal capacity

Institutional capacity is crucial not only for the efficient implementation of large-scale projects but also for ensuring that development benefits are equitably distributed among local communities.

In South Africa, the Municipal Structures Act (Act No. 117 of 1998) categorises municipalities into different groups based on their capacity to govern and provide services. A **“Category B” municipality** refers to a local government that is responsible for providing services, such as water supply, waste management and local planning, to a specific urban or rural area. Category B municipalities form part of a district municipality (**“Category C” municipality**), which co-ordinates services across a broader region.

*Namakwa District Municipality
and its six Local
Municipalities³¹⁶*

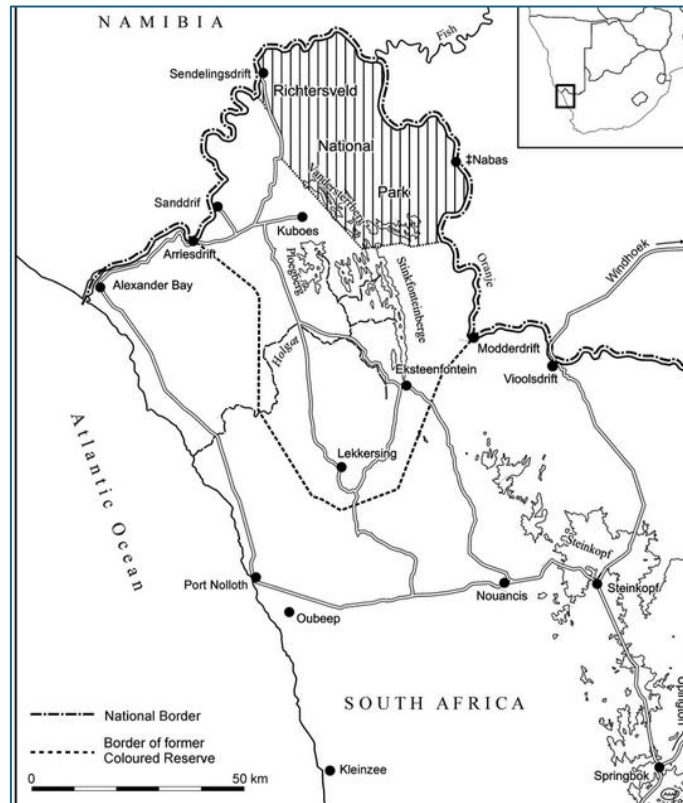


³¹⁶ www.municipalities.co.za

The Namakwa District Municipality (NDM) is a Category C municipality in the Northern Cape Province, covering over one-third of the province's land area, making it the largest district geographically in South Africa. District municipalities are responsible for coordinating the efforts of various local municipalities within their jurisdictions, often acting as the intermediary between the provincial and local levels of government. They should provide key advisory and technical services such as infrastructure development, environmental health and district-wide planning. Most importantly, district municipalities should ensure that local governments receive support in areas such as financial management, governance, spatial planning and policy execution, especially in remote areas where local municipalities may have limited resources.

In Richtersveld LM, There are six wards, demarcated as follows:

*Richtersveld*³¹⁷



Ward	Town/ suburb
1	Kuboes, Eksteenfontein, Sendelingsdrift
2	Lekkersing, Sanddrif
3	Sizamile and part of town (Port Nolloth)
4	Mcdougalsbay & Lydia Links Park
5	Alexanderbay, Beavallon & Baken
6	Nollothville & Barracks

³¹⁷ Berzborn, S and Schnegg, M, 2007, Vulnerability, social networks, and resilience: Rural livelihoods in the Richtersveld.

The municipal council consists of eleven members, of whom six are elected as ward councillors, and the remaining five are proportional representation (PR) councillors.

The new DDM (District Development Model) has placed District Municipalities as a strategic point of focus in the intergovernmental system. District Municipalities are required to compile “One Plans” for their jurisdictions. With the assistance of the Northern Cape Department of Co-operative Governance, Housing and Traditional Affairs (COGTA), Namakwa DM has indeed compiled such a plan.³¹⁸

7.6.3 Political movements in the local and district municipalities

Governance of municipalities is decisively influenced by party-political dynamics – in terms of policy preferences, as well as the stability of decision-making dynamics on Councils, Councillors’ skills and capacity; relationships to socio-economic classes and special interests; and disciplinary measures as far as potential corruption is concerned. Parties that have strong internal discipline and policy coherence tend to fare better than those which are lax and have factional conflicts. Parties that are pragmatic and outcome-oriented are more likely to be successful coalition parties than those that are strongly ideologically-driven.

While political parties are characterised by their national or regional norms, they can also manifest differently in different municipalities, based on local norms and personalities. There is therefore no clear way of “reading off” a political party’s response to issues, problems and opportunities. However, the political party profiles are useful to identify potential shifts in internal political culture and electoral fortunes.

Three of the four local municipalities in the Namakwa District—Richtersveld, Kamiesberg, and Khai-Ma—are governed by the African National Congress (ANC). In Nama Khoi (Springbok), the ANC is the largest party, but is not able to form a Council. Consequently, two opposition parties, the DA and the Namakwa Civic Movement (NCM) govern in a coalition. This section provides a brief overview of party-political dynamics (a fuller description is

7.6.3.1 The African National Congress (ANC)

In this region, the ANC is still the largest party in each municipality. In two municipalities, Khai Ma LM and Kamiesberg LM, the ANC still enjoys an absolute majority in the municipal elections in 2021. In Richtersveld LM, the ANC has dipped to 47,3%; and in Nama Khoi LM, it declined even further, to 42%.

The ANC’s support is hovering around the 50% mark (absolute majority) in the Northern Cape. The four municipalities in our study therefore broadly reflect the provincial ANC electoral position.

7.6.3.2 The Democratic Alliance (DA)

The DA generally commands about a third of the votes cast in the municipal elections of 2021. The one outlier is Khai Ma LM, where the DA only commands around 12% of the vote. The DA is placed second in size in each municipality, except in Khai Ma LM, where it is placed third, and the Namakwa Civic Movement captured the second place slot.

During the 2021 Local Government Elections (LGE), the ANC won the largest share of the vote (42%), but did not achieve an absolute majority. Consequently, the Democratic Alliance (DA) and the Namakwa Civic Movement (NCM) formed a coalition government. A remarkable shift in political culture has taken place on the Nama Khoi Council, away from “winner take all” politics, towards the politics of coalitions. The DA and NCM signed a formal agreement outlining the rotation of key leadership roles.³¹⁹ The July 2024 leadership transition, where the incumbents of the positions of Mayor and Speaker were rotated, aligns with this agreement.

³¹⁸ <http://www.coghsta.ncpg.gov.za/index.php/resource/more-info/ddm-one-plan/category/65-namakwa>

³¹⁹ McGluwa, H. 2024. DA takes up mayoral position in Nama-Khoi coalition municipality.

7.6.3.3 The Namakwa Civic Movement (NCM)

The NCM is a political movement born and bred in the Namakwa District itself. It therefore has a special significance, in that it is competing with two national political parties. Its fortunes indicate the extent to which local residents feel a place-bound political loyalty.

It has contested elections in all four local municipalities in the Namakwa District. It has positioned itself as a challenger to established political parties like the ANC. The NCM currently has representation on three councils: Nama Khoi, Khai Ma and Kamiesberg LM. In Richtersveld, the NCM has barely featured, at 3.8%. In Kamiesberg LM, the percentage was almost double, at 7,5%, and here the NCM managed to capture one seat.

In Nama Khoi LM, the NCM has been particularly successful.³²⁰ Because the ANC in Nama Khoi LM dipped below 50% of the vote, this meant that the NCM became a kingmaker in Nama Khoi, and in an alliance with the DA, it is now ruling this crucial municipality. As the third-largest party, it has successfully formed a ruling coalition with the Democratic Alliance (DA), which is the second-largest party.

The NCM appears highly pragmatic in its approach to social issues. It is grounded in community activism in many fields, including labour relations, and care for schools and the elderly.³²¹ Its vision is: “To transform the communities in Namakwa by being pioneers in the management and organization of her wealth”, where “everyone with proven origins in the geographic area of the Namakwa District Municipality has access to equitable opportunities and equally benefits from the wealth of this area”. This formulation suggests that there will be a significant proactive redistributive agenda, whereby revenue generated by any new project (such as Boegoebaai) will require specific measures to uplift the Namakwa communities. It may have a reluctance to encourage or assimilate with in-migrants into the area, but this will have to be verified.

The NCM Constitution posits the following mission statement: Socio-economic transformation by strategically mobilising communities; lobby and advocate for identified relevant focus areas; establish vibrant governance structures to ensure effective organisational output and accountability, promote the beneficiation of the natural resources of the area, and funding and execution of projects via the investment arm. It sees itself as a “civic movement”, which participates in politics, but remains anchored in the civil society of Namakwa. The movement appears to be broadly transformative with a strong focus on effective organisational development, promoting social inclusivity, promoting socially responsible economic investment, and building local pride. In particular, it espouses the principle of “For Us, By Us” within the communities where it governs”, which will be significant in any discussions on the Boegoebaai projects.³²²

The NCM constitution provides detailed requirements for organisational structures and procedures, in order to prevent the party elite from drifting away from the membership. At the most senior level, the organisation's District Executive Management Committee is the ultimate decision-making body. Consisting of 15 members, it will be selected from the municipal management committee leaders every four years, or about one year before a local government election. Nama Khoi LM has four delegates on the committee: Hantam LM has three, and all the other municipalities have two each. There is therefore a strong degree of political coherence amongst the municipalities that comprise Namakwa District. The NCM also has linkages the Northern Cape Communities Movement (NCCM), which has representation at the Provincial Legislature and the national NCOP.

Significantly, the NCM constitution requires all aspirant councillors to be interviewed and assessed for competency. There are detailed requirements for appropriate conduct, and discipline and procedures in cases of misconduct. The NCM requires all members and councillors “to participate in the effective functioning of their respective wards and municipal structures, attend meetings punctually, come prepared for agenda items, collaborate as a cohesive team, take action on identified tasks, foster constructive discussions and decision-making, and abide by group decisions. They should encourage membership growth”.

³²⁰ Mkhwanazi, S. 2021. The rise of civic movements as they challenge political parties.

³²¹ <https://namakwacivic.org.za/>.

³²² NCM Constitution, available on www.namakwacivic.org.za.

The Constitution provides an overview of key policy priorities, which are generally very progressive. These could be an important guide for the organisation's future stance in policy questions and CSI decisions related to the Boegoebaai project:

1. Health: Establish an exemplary health care system for all Namakwa citizens, prioritizing the well-being of health care workers; promote superior service delivery; and transform digital health tools and information management systems in the district.
2. Education: Foster critical thinking through digital education platforms, providing resources to learners and teachers; encourage subject choices aligned with future careers and support non-academic achievers; enhance and expand TVET colleges to accommodate local and national careers; promote and support science education, including bursaries for science teachers.
3. Social development: Promote self-reliance and self-worth within Namakwa communities; address unemployment and food security challenges; and engage communities in self-improvement efforts.
4. Arts and culture: Identify and preserve Namakwa's cultural heritage; promote artistic and cultural preservation at grassroots levels; develop infrastructure and educational centres to nurture artistic expression;
5. Economic development: Prioritise new sector development projects to retain capital within Namakwa; focus on economic liberation within the next 20 years; hold private companies accountable for their socio-economic responsibilities; and execute turnaround strategies within municipalities and collaborate with the private sector.
6. Sport: Revive and improve existing traditional sport infrastructure; establish accessible sport infrastructure for people with disabilities; and integrate district sport gatherings into municipal budgets to stimulate sport participation and boost the economy.
7. Agriculture: Revive and commercialise viable agricultural initiatives; develop drought relief policies and support subsistence and commercial farmers; implement high-value agriculture projects; and make agriculture central to Namakwa's development.
8. Public benefit infrastructure: Maintain roads and public property to prevent decay; hold accountable those responsible for irregular expenditures; research and construct new public benefit infrastructure; address informal settlements and expedite housing delivery; ensure consistent provision of water and electricity.
9. Safety: Participate actively in safeguarding Namakwa communities; hold law enforcement agencies accountable; improve crime prevention; and collaborate with community groups.
10. Mining and energy: Safeguard the mineral wealth of Namakwa for the benefit of current and future generations; advocate for responsible mineral exploitation; monitor and encourage corporate social responsibility; execute turnaround strategies within municipalities; and collaborate with private sector organisations to provide viable business opportunities.

These NCM goals may offer useful guidelines for CSI activities in the Boegoebaai region.

The NCM has a strong local base and local values, which are not primarily ethnically based. The NCM may well grow and become more influential, due to its overt pragmatism and strong normative basis. Its highly successful partnership with the DA in governing Nama Khoi LM will also contribute to its reputation and confidence. Its local base may make it more amenable to local problem-solving, in a context of dealing with a large new regional project such as Boegoebaai.

The rise of civic movements like NCM reflects the increasing disillusionment with the traditional parties and a push for more localized and direct forms of governance. The ability of smaller parties to win seats points to a complex and evolving political landscape in the Northern Cape Province, which can also be seen as a maturing of democracy.

7.6.3.4 The National Economic Fighters (NEF)

In October 2021, a new political party, the National Economic Fighters (NEF) was established by Dawid Markus. For years, he had been known as a fiery activist for the rights of poverty-stricken local miners.³²³ Its first foray into political competition took place in 2021, in the four municipalities that are the focus of Boegoebaai study. The NEF managed to secure a seat in the Richtersveld Council, and one in Kamiesberg. Their numbers are still small, but it may be the case that there is a dedicated following, based significantly on a single issue (the rights of artisan miners).

7.6.3.5 The KhoiSan Revolution

This party was also established in late 2021, to contest the municipal elections.³²⁴ The party is led by Stanley Petersen. In our region of study, the KRP only stood for election in Nama Khoi municipality. In fact, several Khoisan parties registered for the municipal elections in 2021.³²⁵ The KRP was by far the most significant Khoisan party, focusing on ethnic mobilisation. In the Northern Cape, the KRP won 1745 ward votes and 2129 PR votes, giving it a total of 3874 total votes. Although these numbers are small, the issue of ethnic mobilisation is a very important one, as it can easily be activated during times of contestation on ideas or projects.

Ethnic parties often tend in the direction of zero-sum politics, whereby issues are interpreted as either a loss or a win. This may make multiparty negotiations and problem-solving more difficult. On the other hand, this may be a positive way of addressing the historical concerns of the past, instead of such issues being sidelined and left to smoulder.

Such KhoiSan parties may be tapping into a well of resentment and grievances, based on historic loss of land, livelihoods, and status. These matters will need very careful handling, with slow and systematic development of common points of view. Given the historical uniqueness of Namaqualand, and its still-current ethnic and linguistic character, there will need to be special effort and sensitivity paid to the issues and concerns of such local ethnic parties.

7.6.3.6 Economic Freedom Fighters

The EFF draws its appeal from the national profile of this political party. In the 2021 municipal elections, it managed to win one seat in Richtersveld LM and one in Khai Ma LM. Its voter support was generally low, below 8%. It was particularly weak in Nama Khoi LM, possibly due to the strong performance of the Namakwa Civic Movement. This should be compared to the outcome of the 2024 provincial election, when the EFF secured 13.23% of the provincial vote.³²⁶

7.6.3.7 The Freedom Front Plus

The FF+ presumably relied predominantly on white voters. It managed to secure a seat in the Nama Khoi Local Municipality. Its percentages were generally low – less than 4%. However, given the important socio-economic class of EFF+ supporters, notably as commercial farmers or other middle-class occupations, it may be the case that this party punches above its weight.

The FF+ municipal performance should be compared to the outcome of the 2024 provincial election, where it secured only 1.94% of the provincial vote.³²⁷ The low population of this study area, combined with its

³²³ <https://www.ofm.co.za/article/centralsa/310433/nuwe-politieke-party-sien-die-lig-in-noord-kaap>

³²⁴ <https://www.dailymaverick.co.za/article/2021-10-01-actionsa-gauteng-registration-blip-highlights-the-polls-pressure-cooker/>

³²⁵ The other Khoisan parties in the Northern Cape performed much less impressively than the Khoisan Revolution Party. They are The Khoisan Heavenly Party (269 PR votes); the Khoisan Kingdom and All People Party (38 ward votes); the Khoisan Kingdom of RSA Party (50 ward votes); and the Khoisan United Movement (70 ward votes and 79 PR votes = 274 total votes). Independent Electoral Commission, 2021.

³²⁶ <https://results.elections.org.za/dashboards/npe/>

³²⁷ <https://results.elections.org.za/dashboards/npe/>

predominantly Afrikaans language profile, may account for a relatively higher support for this party in the study region, compared to the provincial profile.

7.6.3.8 Congress of the People (COPE)

COPE is a national party, largely based in Gauteng. One can expect its appeal to be limited in the Namakwa area, but it managed to secure one seat in Khai Ma LM.

This should be compared to the outcome of the 2024 provincial election:³²⁸ Its performance in Khai Ma, at just under 6%, is much better than the provincial profile in 2024, at 0.2% of the Northern Cape vote.

7.6.3.9 Patriotic Alliance and Good Party

The PA is also a national movement. It secured very little interest in the study region, at fewer than 300 votes. The Good Party also purports to be a national party, although its main base is in Cape Town. It secured very modest support in our study region. Neither secured any councillors in the Namakwa region. Both stood only in Nama Khoi LM, where both secured just less than 1% of the vote. They are listed here, not because their current strength warrants it, but because both these parties tend to compete for the “coloured vote”, and may become more significant in future. This information therefore serves as a baseline for future comparisons.

7.6.3.10 Independent candidates

Independent candidates did not win a single seat in the district (i.e ward, since Independents cannot stand as PR candidates) in the entire region. They did win some votes in 2021, particularly in the Richtersveld LM (522 votes), possibly because the number of parties competing for the election was significantly smaller than in the other municipalities. In Nama Khoi LM, no Independents stood for election. Independents are typically local notables who have a personal following.

7.6.4 *Municipal and civil society organisational capacity*

The proposed new multi-faceted project at Boegoebaai will rely heavily on a range of organisational capabilities on the part of municipalities.

Without a detailed empirical study involving extensive fieldwork, it is not possible to assess municipal capacity – either at present, or in the future if they were to be confronted by the largest investment projects in the history of Namakwa. This section provides an outline of issues which require further investigation, as well as preliminary impressions and cautions.

Each Municipality requires an effective Council as a decision-making body, and an effective relationship between the Council and senior officials. This dimension of organisational functioning difficult to detect, but it can change rapidly, particularly if new people are appointed or promoted. Conversely, though, new appointments may be trapped within a pre-existing institutional culture, which prevent desired changes to be effected. “Organisational culture” can make or break an institution. A positive, collaborative culture can enable an under-resourced municipality to govern effectively, while a negative, conflictual culture can destroy a well-resourced municipality.

7.6.4.1 Human Resources and staff performance

The vacancy rates and staffing challenges across the four municipalities in the Northern Cape have significant implications for governance, especially as they prepare for complex development projects like green hydrogen.

³²⁸ <https://results.elections.org.za/dashboards/npe/>

To develop the skills of councillors and staff, the Richtersveld LM has compiled a Workplace Skills Plan (WSP). Performance Management Contracts have been formalised between the Municipal Manager, the Mayor, and Senior Managers. A Service Delivery and Budget Implementation Plan (SDBIP) serves as the Municipality's key performance measurement tool. A Task Job Evaluation Committee has been established, and the Job Evaluation process has been completed.³²⁹

In Richtersveld, significant strides had been made in formalising job evaluation processes by 2023, marking a shift from the *ad hoc* practices of the previous year. Performance Management Contracts now include Senior Managers. While the establishment of a Health and Safety Committee remains a work in progress, centralized record-keeping for injury-on-duty cases demonstrates improved administrative efficiency. Vacant posts had been filled, though critical gaps persisted, notably in Local Economic Development (LED) and Wastewater-Sanitation. Vacancy rates in 2023 were particularly concerning in community services (12 out of 57 posts), administration (12 out of 57 posts), and administration (3 out of 10 posts).³³⁰ The problem of high levels of sick leave required sustained attention.³³¹

Nama-Khoi Municipality reported a high vacancy rate of 54%, with significant gaps in technical and administrative roles. The lack of skilled personnel in departments like Technical Services, Corporate Services, and Community Services could severely hamper the municipality's ability to undertake infrastructure projects. Furthermore, the high turnover rate of 33% annually creates instability, leading to loss of expertise and disruption in long-term projects.

Khai-Ma Local Municipality had a vacancy rate of only 9% in 2023. The municipality faced several human resource challenges, which include: Persistent morale problems, coupled with widespread disciplinary concerns; absenteeism and Unauthorised Leave; Staff health issues, such as HIV/AIDS, and substance abuse; Difficulty to utilise funding sources (such as MIG, ACIP, INEP, and EPWP); inadequate office space; and critical skills gaps (technical and management areas), which hampers the municipality's ability to efficiently implement projects.³³²

According to the Khai-Ma IDP (2024), The municipality monitors staff performance through the implementation of a Service Delivery and Budget Implementation Plan (SDBIP). Senior managers in finance, corporate services, and technical services are required to sign performance agreements as part of this process.³³³

The Kamiesberg municipality faces significant institutional and financial capacity constraints. The loss of skilled and trained staff remains a pressing issue, requiring wider and more affordable advertising for vacancies, along with targeted skills development programs and the recruitment of technicians within the area.³³⁴ Employee punctuality is another concern. There was a vacancy rate of 13% in 2022, including the CFO position.

At the **Namakwa District Municipality**, there was a vacancy rate of 36% in the Budget and Treasury Department in 2023.³³⁵ Staff turnover rate was 20% per annum, and the amount of sick leave caused concern.

7.6.4.2 Public participation mechanisms

Ward committees are the most important and potentially most effective mechanism of exchanging views with the public.

In Richtersveld, functional ward committees have been established in all six wards of the Richtersveld Municipal Area. The roles of ward committees include clarifying programmes for the community, enhancing transparency, harnessing local resources for development, and improving planning based on local needs

³²⁹ Richtersveld LM, 2022, *Annual Report*, p. 26.

³³⁰ Richtersveld LM, 2023, *Annual Report*, 26

³³¹ Richtersveld LM, 2023, *Annual Report*, p. 26.

³³² Khai-Ma Local Municipality. 2023. *Integrated Development Plan*

³³³ Khai-Ma Local Municipality, 2024. *Integrated Development Plan*.

³³⁴ Kamiesberg Local Municipality, 2023, *Annual Report*, p. 23, 77.

³³⁵ Namakwa DM, 2024. *Annual Report 2023/2024*, p. 101

and strengths. These committees meet monthly with administrative support from the municipality, where agendas are set, and minutes are systematically recorded. During these meetings, issues are directed to relevant departments, and officials are invited to present reports. The ward councillor, who serves as chairperson, plays a central role in overseeing development activities, participating in planning processes, and facilitating community engagement. However, operational challenges, such as difficulties with sector report-back meetings, remain a concern in Richtersveld LM.³³⁶ Various factors affect the success of meetings, such as weather, timing, venue proximity, notice periods, and the nature of the topics discussed. While stakeholder meetings are typically productive, it is noted that some participants come unprepared. A significant issue, however, arises from the scheduling of public participation meetings for the Integrated Development Plan (IDP), which are held during working hours, which access for the working people.³³⁷

In Nama Khoi, ward committees meet once every two months, with the agenda based on matters raised by the various members. In terms of funding for out-of-pocket expenses, the Council has approved a monthly stipend of R500 for each committee member to cover transport and telephone costs, on the condition that they attend the quarterly standing ward committee meetings (NKLM, 2022:32). All ward committees are listed as functional.³³⁸ In addition, the municipality provides training for both municipal officials and ward councillors. In the 2022/23 period, a total of 30 individuals received training.³³⁹

The Communication Unit in the Office of the Municipal Manager employs several communication strategies:³⁴⁰

- Newsletters: A quarterly publication for internal and external communication.
- Website: An active platform where all official documents are published.
- Customer Service: A section handling queries, complaints, and information requests.
- Social Media: The municipality uses its Facebook³⁴¹ page to engage with the public.
- Council Meetings: Open to the public, media, and stakeholders for transparency.
- Ward Committees: Facilitate communication between the council and local communities.
- Councillors: Host quarterly meetings for two-way communication with residents.
- Radio: Council discussions are aired on local station Radio 98.1.
- Media Statements: Issued regularly with approval from the Municipal Manager.
- Advertising: Local newspapers³⁴² and Media24 for statutory and promotional purposes.

The Nama Khoi Municipality is therefore working towards building a more transparent, accessible, and accountable communication environment. The municipality uses a variety of platforms to engage with both internal and external stakeholders.

In Khai-Ma Local Municipality, one of the significant challenges facing the municipality is the low attendance of community members at scheduled meetings. There is a perception that slow development does not adequately address the needs of residents, leading to a lack of motivation to participate. Additionally, many inhabitants feel that their basic service needs have already been met, reducing their eagerness to attend. There is a noticeable lack of interest, particularly among the youth. Communication issues also play a role: Not all residents are informed in a timely manner about scheduled meetings, compounded by the absence of a local newspaper and community radio, which could provide vital information. To improve community participation, the municipality contemplated regular door-to-door visits by ward committee members will help

³³⁶ Richtersveld LM, 2024, *Integrated Development Plan*, p. 70.

³³⁷ Richtersveld Local Municipality, 2023, *Annual Report*, 2023, p. 57

³³⁸ Nama Khoi Local Municipality, 2022, *Annual Report*, p. 32.

³³⁹ Nama Khoi Local Municipality, 2024, *Integrated Development Plan*, p. 40.

³⁴⁰ Nama Khoi Local Municipality, 2024, *Annual Report*, p. 45.

³⁴¹ Municipal Facebook page: <https://www.facebook.com/NamaKhoiofficial/>

³⁴² Local newspapers: Die Plattelander (<https://www.dieplattelander.com/>), Die Namakwalander (<https://www.facebook.com/p/Die-Namakwalander-koerant-100063591549426/>)

gather information for their monthly meetings, which can then be shared with ward councillors and brought to the council.³⁴³

In Kamiesberg Local Municipality, there is a reliance on councillors interacting with senior officers to facilitate communication. The lack of a clear community liaison mechanism may hinder effective communication and engagement with the public. In 2023, ward committees were active in four of the six wards in the Kamiesberg Municipal Area, and played a role in the IDP review process. (At the time, the Koiingnaas and Spoegrivier wards did not have ward councillors). These committees are chaired by part-time ward councillors and meet quarterly to update the community on municipal matters. They did not always function well, and the municipality planned to address these issues through targeted training.³⁴⁴ The municipality was only able to hold nine out of the 16 planned IDP review public participation sessions, and attendance at these meetings was very low, with some sessions having no public participation at all.

7.6.5 Municipal infrastructure management

The Boegoebaai initiatives will rely on robust municipal infrastructure, including roads, water supply, urban planning, waste management, and electricity grids.

7.6.5.1 Richtersveld LM

Towns and villages in the Richtersveld jurisdiction are geographically dispersed, requiring duplication of critical infrastructure like sewage treatment, water purification, and electricity networks for each settlement. This fragmentation complicates service delivery, forcing the municipality to operate separate service desks in each town to handle account queries, payments, and service disruptions, resulting in redundant staffing. Although the Richtersveld Municipality has centralised many administrative functions in Port Nolloth to minimise redundancy, this creates new challenges in ensuring consistent reporting and oversight across its scattered towns.³⁴⁵ The transfer of Alexander Bay from Alexkor has further expanded the municipality's responsibilities.

The current municipal Blue Drop score is at 36%, and needs to improve water quality management. The upgrading of the 8 Mile pipeline must be undertaken to ensure improved water service to communities of Sizamile, Port Nolloth town, Nollothville, as well as McDougall's Bay.³⁴⁶

The following table provides an overview of the basic services in the Richtersveld Local Municipality:

Overview of Basic Services in Richtersveld Municipality³⁴⁷

Service	Details
Indigent Households	Over 1,164 poor households are registered as Indigents, representing 20.6% of the 5,643 households in the municipality (2022).
Access to Basic Services	97% of households in the entire municipal area have access to basic services.
Water	All towns have access to potable water, except for the informal settlement in Sanddrift, which has access via communal taps.
Sanitation	All towns have access to basic sanitation services, including reticulation systems (waterborne), chemical toilets (UDF and VIP), and eradication of bucket systems.
Energy	All areas have access to electricity. The 4 satellite towns and Sizamile are covered by ESKOM. No National Infrastructure (INEG) funding received for 2020/21.
Refuse Removal	All households have access to refuse removal services.

³⁴³ Khai-Ma Local Municipality, 2023, *Integrated Development Plan*, p. 28, 55.

³⁴⁴ Kamiesberg Local Municipality, 2023, *Annual Report*, p. 30-31, 41.

³⁴⁵ Richtersveld LM, 2024, *Integrated Development Plan*, p. 63.

³⁴⁶ Richtersveld LM, *Spatial Development Framework*, 2024, p. 192.

³⁴⁷ Richtersveld LM, 2024, *Integrated Development Plan*.

Housing	In 2019, 91% of households had access to formal housing.
Storm Water Drainage	Storm water drainage remains a challenge, particularly in Port Nolloth and low-lying residential areas.

In several sectors, Richtersveld faces great challenges:

Summary of Service Delivery Challenges and local impact³⁴⁸

Service Area	Challenges
Housing & Sanitation	Insufficient housing and limited sanitation infrastructure result in inadequate waste management and hygiene risks.
Bulk Water Supply	Difficulty in ensuring reliable water supply, especially in distant communities.
Operations & Maintenance	Limited budget and capacity for infrastructure upkeep, resulting in service disruptions
Road Infrastructure	Poor road conditions and connectivity issues hinder accessibility. Road maintenance and construction face challenges due to high costs, inherited backlogs, and funding constraints, which limit economic activities and access to health care and education. No Infrastructure Master Plan for bulk services.
Healthcare Services	Communities are located far from health facilities, especially for emergency and after-hours care.
Education	Students in rural areas must travel long distances to reach secondary schools, creating barriers to consistent school attendance.
Municipal Demarcation	Fragmented settlements increase complexity in service coordination.
Financial Sustainability	High costs of service delivery due to dispersed settlements.

The Richtersveld Municipality is an accredited Water Services Authority under South Africa's National Water Act. The municipality collaborates with other entities, such as Lower Orange River Diamonds and Alexkor RMC JV, to ensure fresh water supply, especially in case of breakdowns. Most towns, except for Alexander Bay and Sanddrift, face insufficient water sources. The municipality is working to improve its Blue and Green Drop status for water quality management, with a focus on addressing high water losses and exploring methods like borehole development, wastewater recycling, and desalination. Domestic usage in Port Nolloth places significant demands on resources, with peak consumption during December holidays. The municipality is reviewing its Water Services Development Plan (WSDP) to secure future water sources and improve infrastructure.

Port Nolloth's water supply relies on boreholes and an ageing asbestos pipeline constructed in 1989. Water is pumped from the Orange River to a main reservoir in Alexander Bay. From there, it travels through two booster pumps and a 46.5 km asbestos pipeline to the Muisvlakte reservoir near Port Nolloth, and then distributed via pipelines to Port Nolloth, Sizamile, and McDougall's Bay. Historically subsidized by Alexkor, the cost of water has risen significantly, currently standing at R2.75 per kilolitre. The pump system was designed to deliver 44,000 litres per month. However, investigations reveal that it supplies only 50–75% of that volume, due to deteriorating infrastructure (leaking pipes, non-functional air valves, and failing pipe sections).

The lack of a monitoring and control system for the pumps and reservoir water levels increases operational costs for the Richtersveld Local Municipality's technical staff. This water supply is inadequate to meet current needs, let alone accommodate future growth, particularly if the Boegoebaai port project adds further pressure. Only seven municipal boreholes are currently operational, none of which provide water suitable for long-term human consumption. Water storage capacity at Port Nolloth is also inadequate: The existing

³⁴⁸ Richtersveld LM, 2024, *Integrated Development Plan*; Richtersveld 2023, *Annual Report*.

reservoir holds only 2,500 litres, far below what would be required to meet the projected population growth associated with the Special Economic Zone. The town's storage needs to double by 2040 .³⁴⁹

Dilapidated road infrastructure has several negative impacts on community development in Richtersveld, such as hindering local business and agricultural activity, limiting market access, delays in social services, social isolation, retarding tourism development, increasing and infrastructure maintenance costs.

These infrastructure challenges could exacerbate existing social and economic disparities, and inhibit new investments, preventing the town from fully capitalizing on opportunities for growth and development.

The Auditor-General's office has indicated that Richtersveld LM underperforms in meeting its planned waste management and water quality targets. The municipality aimed for a 95% water quality level in compliance with SANS 241 standards. However, during the 2021/22 financial year, none of the reported performance indicators were achieved, with AGSA noting a significant shortfall, quantified as a 100% underachievement.³⁵⁰

7.6.5.2 Nama Khoi LM

The Nama Khoi Local Municipality outlines the following service delivery challenges in their annual report : Submitting grants and business plans for funding opportunities; implementing stricter procurement processes; increasing the budget to fill vacant positions and strengthen staff capacity; clearing illegal dumping sites and rehabilitating landfill sites.³⁵¹

In January 2024, The Nama Khoi Local Municipality (NKLM) and De Beers Consolidated Mines (DBCM) successfully concluded the transfer of municipal responsibilities for Kleinzee, marking a significant milestone in regional development and public-private collaboration. Valued at R270 million, this transition ensures sustainable service delivery, economic development, and improved infrastructure. To ease residents into municipal service structures, the municipality has introduced financial support measures, including temporary property tax rebates and free basic services for qualifying households until mid-2025. Planned upgrades in Kleinzee include infrastructure improvements and enhanced water and electricity services.³⁵²

7.6.5.3 Khai-Ma LM

Khai-Ma Municipality renders basic services to the inhabitants of Onseepkans, Blyvooruitsig, Pofadder and Wittbank. Black Mountain mine provides services to the inhabitants of Aggeneys, which has been proclaimed as a town. The municipality does not extend services to non-urban areas like Dwagga Salt Works, Raap-en-Skraap, Vrugbaar, and Rooipad Boerdery, which are privately owned. Consequently, the needs of Aggeneys and these non-urban areas are not included in the IDP, as they fall beyond the municipality's current service responsibilities.

The municipality faces extensive service delivery difficulties (see more detail in Appendix A).

7.6.5.4 Kamiesberg LM

According to the Kamiesberg Local Municipality (IDP, 2024:68), the municipality faces knumerous service delivery and infrastructure challenges (see Appendix A).

There are systemic governance weaknesses, such as the lack of an Integrated Asset Management Plan (IAMP), the lack of proper implementation of Municipal Regulations on Standard Chart of Accounts (MSCOA)³⁵³, insufficient personnel and rising vandalism of municipal assets.

³⁴⁹ BVi Consulting Engineers. 2024. Feasibility Study on Port Nolloth's Bulk Water Supply.

³⁵⁰ AGSA, 2022. Consolidated General Report on Local Government Audit Outcomes.

³⁵¹ Nama Khoi LM, 2022, *Annual Report*, p. 20.

³⁵² <https://www.namakhoy.gov.za/2025/02/07/nama-khoi-local-municipality-and-de-beers-consolidated-mines-finalize-historic-agreement/>

³⁵³ Kamiesberg LM, 2024. 2023/24 Final Annual Budget and MTREF;

The Kamiesberg Local Municipality acknowledges the mining industry's significance for local socio-economic development. Under the *Mineral and Petroleum Resources Development Act*, mining companies are required to implement Social and Labour Plans (SLPs) that benefit the communities in which they operate. These SLPs should address key municipal challenges in alignment with the Integrated Development Plan (IDP), rather than focusing on isolated projects, to maximise their impact. According to SLP guidelines, companies must consult with local communities and coordinate their activities with provincial and national economic development frameworks. It remains unclear whether mining company representatives actively participate in these forums in Kamiesberg.

7.6.6 Municipal finance and audit performance

This analysis examines the primary sources of income, such as property rates and service charges, and compares these across municipalities to evaluate financial health. The assessment also explores the impact of outstanding debts, particularly those owed to entities like Eskom and water boards, on municipal stability. Financial constraints may limit municipalities' ability to engage in or benefit from capital-intensive projects like green hydrogen development.

Municipalities' ability to submit adequate financial statements to the Auditor-General's office can also be taken as a proxy for administrative effectiveness.

7.6.6.1 Richtersveld Local Municipality

The municipality's total expenditure consistently exceeds its revenue, leading to a recurring deficit each year. The municipality faces difficulties in managing its operational costs and servicing its debt. The municipality relies on transfers from higher levels of government grants to fund its operations. Without a strong base of locally generated revenue, the municipality remains vulnerable to fluctuations in intergovernmental transfers, which may not always be sufficient to meet its financial obligations.³⁵⁴

The municipality's current liabilities have also increased over time, including a significant shortfall of R64,226 million in 2022/23. The municipality is struggling to generate enough cash from its operations to cover day-to-day expenses, including debt repayment and service delivery. Between 2018/19 and 2022/23, the municipality's debt grew from R2,5 million to R10, 7 million, which limit its ability to fund essential services or invest in future infrastructure development. There was a negative cash balance of just under R14 million at the end of 2022/23.

Additionally, the municipality has faced significant unauthorised, irregular, and fruitless expenditure, which reached R161 million in 2021/22. Irregular expenditure, totalling R39 million in 2021/22, suggests issues with procurement and contract management.

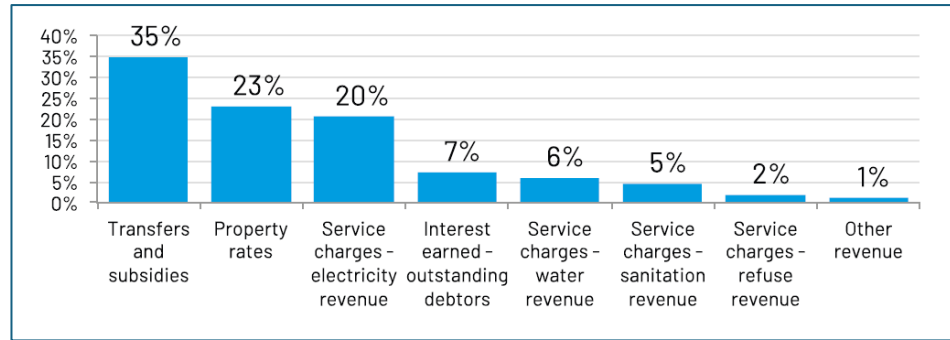
In conclusion, the municipality's financial position is precarious. To improve its financial sustainability and creditworthiness, the municipality must focus on improving revenue generation, implementing stronger financial controls, and addressing its debt management challenges. The municipality envisages prepaid water meters; this will require a thorough process of public awareness and buy-in.³⁵⁵ During the 2022/2023 financial year, the Richtersveld Local Municipality increased property rates in line with a new valuation roll. In response, some local residents refused to pay the higher rates.³⁵⁶ Intergovernmental transfers form the bulk of the municipality's operating revenue:

³⁵⁴ <https://municipalities.co.za/financial/1172/richtersveld-local-municipality>

³⁵⁵ Richtersveld LM, *Spatial Development Framework*, 2024, p. 192.

³⁵⁶ Richtersveld LM, 2023, *Annual Report*.

Operating
Budget
Revenue
Sources
(2020/21) :
Richtersveld
LM³⁵⁷



The local government equitable share (LES) forms the single largest component of revenue, and amounts to about 35% of total revenue.

The bulk of Richtersveld LM's capital budget over the past seven financial years is funded from national government transfers. Richtersveld currently receives funds from the MIG for water, sanitation, refuse, roads and sport infrastructure, the integrated national electrification programme (INEP) for electricity infrastructure and the water services infrastructure grant to support further water infrastructure. "With the exception of the MIG, most of these grants are not consistent, that is, they enter and exit the fiscal framework in a generally uncoordinated manner and the allocations can differ substantially between years. This likely explains the relatively large variations in the capital budget spend across the years in the Richtersveld LM. These grants are further constrained by a tight national fiscal framework, resulting in cuts to grant allocations at times of revenue pressures at the national level".³⁵⁸ Richtersveld LM's own contribution via internally generated capital funds and borrowing is negligible.

As proportions of the budget, Employee Costs are not exorbitant, at around 33% of expenditure. An additional high cost is "inventory consumed and bulk purchases", referring mainly to high costs of electricity and raw water at about 20% of expenditure. This is not surprising, since much of Richtersveld community water supply is pumped from long distances, with concomitant electricity and maintenance costs. Since 2020, "inventory consumed" has increased (nominal growth rate), and employee costs have declined.³⁵⁹

Richtersveld LM's growing debt level, from R80 million in 2018 to R120 million in 2022, is largely driven by three main factors. Firstly, it can indicate an *inability to pay* for services, because consumers are facing financial pressures due to changing economic circumstances. Secondly, it can indicate an *unwillingness to pay* for services, which is an indication of unhappiness with government services. Lastly, it can also indicate *capacity issues in debt management* within the municipality, whereas the municipality's databases, billing, meter reading and credit control systems have fundamental issues that contribute to poor revenue collection.³⁶⁰

The South African government has approved a substantial debt relief package for municipalities owing Eskom, with specific conditions that municipalities must meet to qualify. These conditions include adopting financial best practices, implementing prepaid metering systems, and improving revenue collection rates. Municipalities are required to adhere to these conditions for a period of three years to gradually reduce their debt, with the possibility of full debt cancellation if the requirements are met for 36 months. One of the municipalities approved for the debt relief package is the Richtersveld Local Municipality, which owes R53 million to Eskom.³⁶¹ In 2020, the Richtersveld Local Municipality *defaulted on several payments to Eskom*,

³⁵⁷ National Treasury Section 71 Reports – Schedule C)18, in Nzo, T., Mahabir, J., 2023. *Inclusive and decentralized renewable energy development*, p. 29.

³⁵⁸ Nzo, T., Mahabir, J., 2023. *Inclusive and decentralized renewable energy development*, p. 32.

³⁵⁹ Nzo, T., Mahabir, J., 2023. *Inclusive and decentralized renewable energy development*, p. 35.

³⁶⁰ Nzo, T., Mahabir, J., 2023. *Inclusive and decentralized renewable energy development*, p. 35.

³⁶¹ Creamer, T. 20203. Municipalities approved so far for Eskom debt relief owe a combined R26.69bn.

accumulating an outstanding debt of R13 million. For the 2022/2023 financial year, as of April 2023, the Richtersveld Municipality had not made any payments to Eskom.³⁶²

The municipality's audit findings have highlighted concerns regarding unauthorized, irregular, and fruitless expenditure, which reflects poor governance and compliance with financial regulations.³⁶³ From 2018 to 2023, the Richtersveld Local Municipality received qualified audits.

Key issues included material misstatements in financial records, particularly regarding taxes, receivables, and inventory, and a lack of sufficient audit evidence for certain transactions, such as maintenance expenses and contracted services. The municipality also faced challenges in complying with supply chain management regulations, resulting in understated irregular expenditure in the financial statements. There are weaknesses in internal controls and risk management practices, which reduce the municipality's ability to comply with financial regulations.³⁶⁴

Richtersveld Local Municipality financial overview³⁶⁵

Indicator	Details
Audits	2018-2013: Qualified audits
Going Concern Uncertainty	Doubts about municipality's ability to continue operations (1 year)
Creditor Payment Period	Average of 574 days (should be <30 days)
Unrecoverable Municipal Debt	92% of municipal debt cannot be recovered
Debt Collection Period	Average of 85 days to collect debts owed
Total Liability Position	No total liability position at year-end
Bank Balance at Year-End	Positive cash balance (no overdraft)
Deficit for the Year	Spent R8.6 million more than income
Budget Spending	Over 50% of following year's budget already spent, i.e. overspending

Concerns over financial sustainability were highlighted, indicating the municipality's struggles in effectively managing its resources and meeting financial obligations. In the context of large-scale projects like green hydrogen development, these reporting gaps could potentially delay project execution and undermine trust in the municipality's ability to manage large-scale initiatives effectively.

7.6.6.2 Nama-Khoi Local Municipality

Despite a relatively stable revenue base from property rates, service charges, and government transfers, the municipality has consistently recorded deficits; the deficit amounted to R18,6 million in 2022/23, which worsened from previous years.³⁶⁶ (More details are provided in Appendix A).

The Nama Khoi ruling coalition has achieved significant successes. In March 2025, it secured a debt write-off of nearly R70 million owed to Eskom. This achievement represents a third of its total debt to the power utility. Nama Khoi entered Eskom's debt write-off programme in 2023 as part of a broader strategy to address its outstanding liabilities, which exceeded R209 million. (The municipality also inherited significant water infrastructure challenges due to years of neglected maintenance under the previous ANC-led local government, as well as additional debt owed to the Vaal Central Water Board). Sound fiscal discipline

³⁶² Rhoda, F. 2023. Municipal debt puts residents at risk of Eskom wrath, DA Northern Cape. 9 October; Motse, O. 2020. Richtersveld Municipality owes Eskom millions.

³⁶³ AGSA, 2022. *Consolidated report on local government audit outcomes, 2022-2023*.

³⁶⁴ Municipal Monies: Richtersveld Local Municipality <https://municipalmoney.gov.za/profiles/municipality-NC061-richtersveld/>

³⁶⁵ AGSA, 2022. *Consolidated report on local government audit outcomes, 2022-2023*

³⁶⁶ <https://municipalities.co.za/financial/1171/nama-khoi-local-municipality>

achieved an 86% compliance rate within the Eskom debt-relief programme, noteworthy compared to many other Northern Cape municipalities who have struggled to comply. "This debt relief marks a turning point for Nama Khoi, providing much-needed fiscal space to strengthen local governance and improve the quality of life for residents".³⁶⁷

The Nama-Khoi Local Municipality's audited outcomes from 2018 to 2020 were marked by recurring challenges in financial management, resulting in qualified audits.³⁶⁸ In the 2020-2021 financial year, the Nama-Khoi Local Municipality received an "audit outstanding" opinion, signalling the municipality's failure to provide sufficient documentation or resolve outstanding issues, which may impact its credibility and long-term financial sustainability.³⁶⁹ Note that the new coalition government in the municipality has only been in power since November 2021, and there may be a trend towards improvements in audit reporting.

7.6.6.3 Khai-Ma Local Municipality

The municipality's financial health and credit control are under considerable strain. Despite a relatively stable revenue base from property rates, service charges, and government transfers, the municipality has consistently recorded deficits. In 2022/3, the deficit amounted to R18,6 million, which worsened from previous years.³⁷⁰ (More details are provided in Appendix A).

7.6.6.4 Kamiesberg Local Municipality

Despite an increase in revenue from property rates, service charges, and other own revenue sources, the municipality continues to face substantial deficits and capital funding challenges. (More information is available in Appendix A).

7.6.6.5 Namakwa District Municipality

The operating revenues sources for Namakwa DM are very limited and is almost fully funded by intergovernmental fiscal transfers. Other revenue sources are negligible.³⁷¹ This is due to the fact that Namakwa DM does not provide any of the basic services to its residents, as it is not assigned those functions. District Municipalities such as Namakwa play a key role in district-wide planning, economic development and other regional services, such as environmental health.

The most crucial functions of the DM are to provide technical support to Local Municipalities, to undertake district-wide planning, and to facilitate relationships between national, provincial and local stakeholders, including the public and private sectors. In terms of the District Development Model, this is a crucial and strategic function, which does not require much capital funding, but does require adequately skilled staff to engage with projects at a very sophisticated level.

7.6.6.6 General financial position of Namakwa Local Municipalities

The four Local Municipalities have several common features regarding their auditing and financial reporting, as shown in five years of local municipal audit reports:

- Qualified audit reports, which highlight specific issues or discrepancies
- Unauthorised, irregular, fruitless expenditure

³⁶⁷ Van der Lith, D, 2025. Nama Khoi Municipality achieves R70 million Eskom debt write-off.

³⁶⁸ Municipal Monies: Nama-Khoi Local Municipality, <https://municipalmoney.gov.za/profiles/municipality-NC062-nama-khoi/>

³⁶⁹ AGSA, 2022. *Consolidated report on local government audit outcomes, 2021-2023*. Typical factors are material misstatements in areas such as taxes, receivables, and inventory, alongside insufficient audit evidence for several financial transactions, including maintenance expenses and contracted services. Non-compliance with supply chain management regulations also contributed to understated irregular expenditure in the financial statements.

³⁷⁰ <https://municipalities.co.za/financial/1168/kamiesberg-local-municipality>

³⁷¹ Nzo, T., Mahabir, J., 2023. Inclusive and decentralized renewable energy development, p. 30.

- Material financial misstatements (e.g. taxes, income received, inventory, maintenance, and contracted services)
- Non-compliance with procurement regulations, leading to doubts about the municipality's capability to manage public funds
- Poor performance monitoring and reporting, particularly in infrastructure management
- Risks of financial instability, e.g. due to poor resource management, loss of investor confidence and delayed project execution
- Budget imbalances
- Unrecoverable debt.

Interventions need to be strong and sustained, presumably by the Northern Cape COGTA, possibly assisted by national agencies. This will require strengthening internal control systems, training of municipal staff, appointment of more experienced and skilled staff, prioritising debt collection efforts, and project management skills.

Several systemic problems that characterise municipal functioning and finance in rural areas in the Northern Cape generally, and South African in general:³⁷²

- Unrealistic budgeted revenue collection levels are not realised while operating costs remain high, with no effort made to contain expenditure
- The local government equitable share is mainly used to fund operational costs rather than utilised for service delivery
- The large number of outstanding debtors indicate that minimal fiscal effort has been applied by municipalities to generate revenue
- Municipalities depend on central government grants
- Government departments owe significant debt to municipalities; in 2019, this amounted to R3.8 billion in the Northern Cape
- Many municipalities have negative cash coverages ratios; they cannot meet their financial obligations, in the event that the municipality becomes unable to collect revenue
- Understaffed and poorly skilled municipal financial management departments
- Politicians pressure officials to relax credit control policies, especially with regards to service disconnections
- Council audit committees exercise inadequate oversight, officials and low literacy levels of councillors place power in the hands of unsupervised officials
- Lack of proper IT governance is responsible for loss of data, and data collection is poor
- Instability in senior management (such as acting Municipal Managers and CFOs) create poor oversight and policy direction
- Illegal connections and tampering with meters lead to distribution losses
- "Malicious compliance" to regulatory requirements.³⁷³

To address these problems, the Northern Cape PGDP proposed interventions such as:³⁷⁴

- Develop and implement credible credit control and debt collection policies

³⁷² Northern Cape Government, 2019, *Provincial Growth and Development Plan*, p. 183.

³⁷³ "Malicious compliance" is defined as strictly following the orders of a superior despite knowing that compliance with the orders will have an unintended or negative result.

³⁷⁴ Northern Cape Government, 2019, *Provincial Growth and Development Plan*, p. 187.

- Create an effective query handling system
- Implement data cleansing projects
- Create revenue enhancement initiatives
- Key vacant positions must be filled
- Strengthen oversight structures at Council level
- Implement consequence management
- Draft affordable payment agreements with creditors.

These guidelines would be a useful yardstick for future financial management interventions.

7.6.6.7 Namakwa DM

According to the Audit-General report, the municipality is stable, with no significant issues in its council or key leadership positions. The position of Municipal Manager was filled in February 2023; however, the Chief Financial Officer (CFO) position remains vacant in 2024. Essential governance structures, such as the Audit Committee, Internal Audit, and the Municipal Public Accounts Committee (MPAC), are fully operational. This solid institutional framework provides a strong foundation for the municipality's involvement in regional development initiatives.

NDM generally complies with financial governance standards, but there are concerns regarding the management of large-scale projects. The reports suggest that the municipality needs to strengthen internal controls and strategic planning to oversee the effective implementation of renewable energy projects and the Boegoebaai projects.

The Namakwa District Municipality has demonstrated consistent fiscal discipline, achieving unqualified audits (with findings) until 2020; thereafter, the audits were rated as “unqualified audits with no findings”. There has been a steady improvement over the last five years.³⁷⁵

In 2018-2019, the audit report for this period highlighted significant challenges in financial management, with the municipality failing to meet some of the basic governance standards. Key issues included inadequate internal controls, poor performance in revenue collection, and lack of compliance with procurement policies. However, the municipality received an unqualified opinion, meaning that the financial statements were generally presented fairly, but there were concerns that needed attention.

In 2019-2020, the audit outcome for this period showed improvements in financial governance and reporting practices, although issues with supply chain management and irregular expenditures persisted. There was a concern about the lack of transparency in some procurement processes. While the municipality improved its cash management, the audit raised concerns about long-term financial sustainability and the overreliance on national transfers.

In 2020-2021, the DM received a clean audit opinion, which indicated that the financial statements were free from material misstatements. Improvements in financial reporting were observed, alongside a reduction in unauthorized and wasteful expenditure. However, concerns about the municipality's internal controls and oversight mechanisms remained. A key finding was the failure to implement effective project management systems for infrastructure development, which had delayed important projects.

In 2021-2022, the municipality continued to show financial discipline, but a lack of strategic planning and budgeting for long-term projects was a persistent issue. Budget allocations for key projects, including renewable energy and infrastructure development, were often exceeded. There were concerns regarding the municipality's limited capacity to manage and monitor large-scale projects, particularly in the renewable energy sector, which was becoming a priority area.

³⁷⁵ Audit-General of South Africa. Audit Report: Namakwa District Municipality, 2019, 2020, 2021, 2022.

In 2022-2023, the DM received an unqualified audit opinion with fewer instances of non-compliance and financial mismanagement. However, the audit flagged challenges with project implementation, particularly as it may impact the green hydrogen and infrastructure sectors. The report pointed out that although budget allocations for renewable energy projects had increased, the actual spending was often delayed due to inefficiencies in procurement and project execution.

7.6.7 Building institutional capacity

This section includes several recommendations which could develop the institutional robustness to manage large new projects, with an emphasis on municipal empowerment and ongoing stakeholder participation. This section incorporates key insights from the SEA public participation process.

7.6.7.1 Building municipal capacity

Municipal support requires political will, institutional effort and technical skill on the part of a variety of support agencies, such as COGTA at national and provincial level, SALGA and DBSA. The most crucial intervention would be a system of inter-governmental collaboration, whereby national and provincial sectoral knowledge and options are shared with District and Local Municipal councillors and staff. One can envisage a series of sectoral task teams, dealing with land use planning, housing, skills training, transport, health, and disaster management, in a shared learning process, involving institutions at several levels of government. Private consortium members need to be part of these multi-level planning mechanisms, so that the realities of the projects are matched with policy choices in each sector. In addition, key stakeholder agencies, such as the Richtersveld CPA, chambers of commerce, and environmental organisations should be included, to determine broad strategic directions and practical options. In the international literature, this is termed "Collaborative Governance"³⁷⁶

The argument was made, in the public review process, that institutional capacity should be built *before* large projects are launched. In principle, that would be an optimal approach. Ideally, bolstering systems should precede investments. However, that is unlikely, for two reasons. Firstly, without an impending investment, the area remains an economic backwater, and there is no real incentive for provincial governments or development agencies to focus on the Richtersveld. Government resources (both financial and skills) are spread very thin. A potential development project "focuses the institutional mind". It is likely that institutional support will be provided only once the projects have been accepted in principle.

Secondly, the bolstering of institutions could, and should, take place *alongside* the development project, so that institutional lessons are learnt *in response to* new features of the development project. This creates a learning environment, where new development options and challenges spur the focus on institutional improvements. Institutional strength is not a static phenomenon; rather, it is the ability to respond timeously and appropriately to developmental options and challenges. For example, the spur of the Boegoebaai project may require provincial government to make accountants available to Richtersveld LM to streamline its budgeting and financial management; with this capacity, the Richtersveld LM councillors will be exposed to financial management standards which will enable them to budget effectively for social services (which are not directly associated with the Boegoebaai project).

The important intervention is the learning environment, where officials, councillors and community representatives will learn the techniques of responding to a challenging environment.³⁷⁷

7.6.7.2 Managing cumulative impacts

These are intrinsically difficult to address before *any* project is implemented. These are likely to be a combination of unintended or unanticipated positive and negative impacts, and these in turn, can have further unintended or unanticipated positive and negative impacts. The most effective response is to build

³⁷⁶ Voets, J.J et al, "Collaborative Governance", 2021. This issue reflects inputs by public reviewers.

³⁷⁷ This point was included in response to public reviewer comments.

institutional capacity to deal with unforeseen impacts and choices. That, in turn, requires the political will and institutional effort referred to above.

7.6.7.3 Maximising community benefits

The harbour and energy projects are not "extraction" enterprises in the same sense as mining, where resources are removed from the ground, leaving nothing behind, so if the mine closes, there is a vacuum in the economy. The port and green hydrogen projects have significant backward and forward multipliers, to create new rounds of investment, which will benefit local communities. This will require institutional effort to *maximise* beneficial impacts, such as technical training, employment, and corporate social responsibility.

This will be the shared responsibility of private sector companies working on these projects, as well as national, provincial and municipal policy-makers, who are ultimately responsible to the electorate. A great deal will depend on the local communities to vote for parties and candidates that make useful developmental proposals about community benefits, and appear to have the capacity to make a meaningful contribution. Ongoing stakeholder participation in decision-making structures will be another important mechanism to identify and promote community benefits.³⁷⁸

7.6.8 Planning for a potential Green Hydrogen and Harbour project

Municipal planning documents (IDPs) play a crucial role in determining how local governments can support green hydrogen development. While Richtersveld's IDP demonstrates a strong alignment with the Boegoebaai projects, backed by comprehensive research and evidence-based planning, other municipalities such as Kamiesberg and Nama-Khoi face challenges due to less detailed or outdated plans. This disparity in planning capacity impacts their readiness for large-scale renewable energy projects.

There are no inherent difficulties with IDPs and SDFs, and the real challenge consists of the intellectual leadership of such planning efforts, knowing what questions to ask, what information to obtain, and what options to present to policy-makers. The Namakwa DM will play a crucial role in this regard, overseeing planning for the entire region. The DM should proactively employ suitable municipal planners; however, it should also obtain support from universities, provincial government, SALGA, and knowledge institutions such as the HSRC and the CSIR. This does not mean that these institutions should actually write the IDPs; but they can be involved in steering the work of private consultants, e.g. by scoping the questions to be addressed, evaluating and supporting research methodologies, accessing useful data from various project participants, and devising coherent policy options for policy makers. This support and guidance should be provided to all four Local Municipalities in Namakwa. **In addition, the impacts of road traffic in the Dawid Kruiper LM (Upington area) and the Kei !Garip LM (Keimoes area) should be drawn into regional discussions, spearheaded by the Namakwa DM and the ZF Mgcawu DM, as part of the SEZ region.**³⁷⁹

In reality, the main planning agency may well be Namakwa District Municipality, whose planning capabilities may far outstrip those of the Local Municipalities. Furthermore, planning activities are expensive, requiring trained and experienced staff, software, and access to data and travel to outlying areas. Namakwa DM may well require additional financial support from one or more of the stakeholder agencies, or from COGTA.

Additionally, gaps in environmental and energy planning, as seen in Khai-Ma, highlight the need for more robust energy master plans. A consistent issue across all municipalities is water infrastructure challenges, with Kamiesberg and Richtersveld experiencing water shortages and aging infrastructure, which could impact a future green hydrogen projects Comprehensive water management and long-term infrastructure investments are essential to ensure these municipalities can effectively support the growing energy sector.

The National Spatial Development Framework (2022) requires much more effective spatial targeting, integration and alignment in infrastructure investment in future. Existing and possible systemic links between places and communities need to be optimised.³⁸⁰ This must be a transition to a compact, service-

³⁷⁸ This point was added in response to public reviewers.

³⁷⁹ This point was included in response to public reviewers.

³⁸⁰ NSDP p. 88.

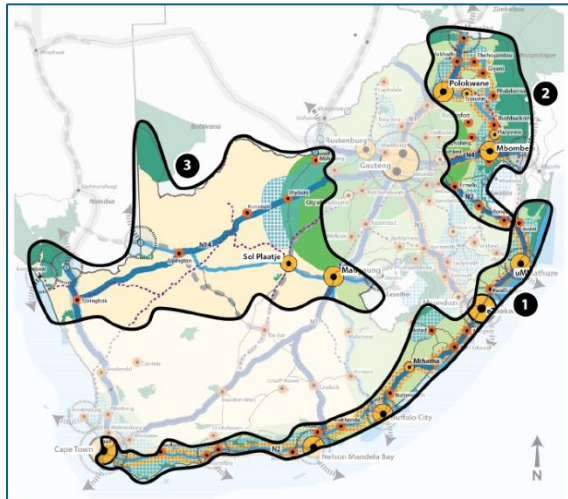
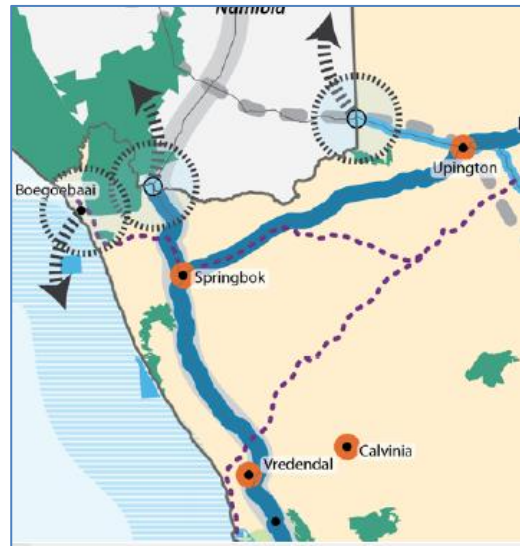
based, resource-efficient space economy, including rural and urban spaces, with a more compact settlement pattern, with suitable housing types, building materials and construction methods.

In the context of Namakwa, the NSDP principle would apply: “A network of vibrant regional development anchor towns, with strong rural-urban connections to strategically located rural service centres that act as regional-rural service providers”³⁸¹ In the NSDP, Springbok will serve as a regional development anchor, and Steinkopf and Port Nolloth as Rural Service Centres.³⁸²

³⁸¹ DALRRD 2022, National Spatial Development Framework, p. 103.

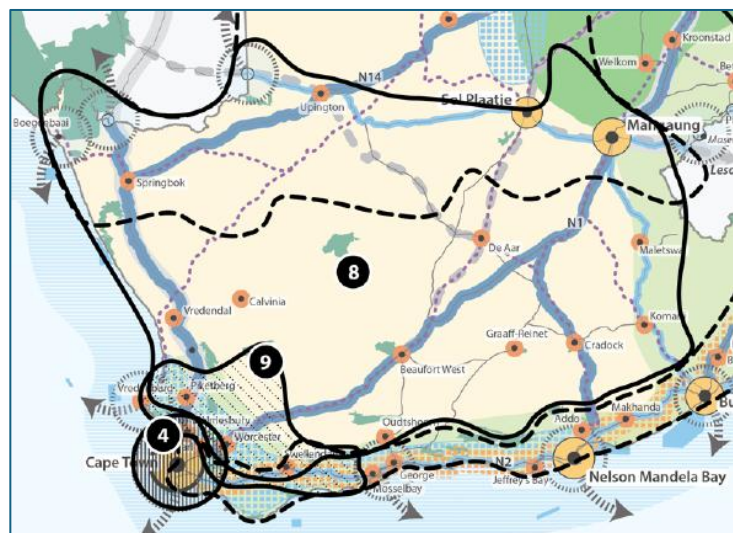
³⁸² DALRRD 2022, National Spatial Development Framework, p. 156.

Right: The NSDP already makes provision for Boegoebaai as a key import/export node.³⁸³ This will be rolled out through the national and provincial departmental strategic plans, as well as municipal IDPs and SDFs.



Left: The Port Nolloth-Springbok-Poffader area is part of the **North-Western National Spatial Transformation and Economic Region (NSTETR)**, one of three important spatial areas in the country.³⁸⁴

The NSDP demarcates the Namakwa area as part of the **“Arid-Agri innovation region”** marked as “Region 8”, with Springbok as a key hub.³⁸⁵



³⁸³ DALRRD 2022, National Spatial Development Framework ,p. 113.

³⁸⁴ DALRRD 2022, National Spatial Development Framework, p. 149.

³⁸⁵ DALRRD 2022, National Spatial Development Framework, p. 126, 177.

With these important regional spatial plans, there will be pressure on the District Municipality to become a key arbiter and guide for spatial planning interventions. The pressures of the SEZ and Boegoebaai investments will make a strong planning department indispensable.

These spatial designs need to be seen in the light of the overarching principles of the NSDP, in terms of “focused rural development”, which involves several key principles:³⁸⁶

- Targeted agrarian reform
- Tenure reform
- The promotion of agri-processing and logistic support hubs
- Diversification of the local economy
- Small-town redevelopment and regeneration in suitable locations
- Public works-led job creation programmes and the roll-out of core government social and municipal services
- The provision of grant support with the building and upgrading of housing, specific in identified regional development anchors and rural service centres
- Investment in restoring and maintaining ecological infrastructure in support of water security, food security and disaster risk reduction, and
- Development of the “wildlife economy”.

The NSDP further notes that a key component of this vision will be rural land reform, which will release under-utilised commercial agricultural and state-owned land for use by new entrants to the farming sector. Rural small towns need to be supported. Agricultural support entities, cooperatives, equipment, fertilizer, market support, funding and research will need to be revived or introduced in rural areas.

Municipalities in the Namakwa District face considerable challenges in infrastructure planning and service delivery, largely stemming from limited resources and insufficient long-term planning. The region’s diverse towns, each with unique socio-economic contexts, require tailored development strategies to address critical gaps in basic services, job creation, and infrastructure. Addressing these challenges is vital to ensure sustainable growth, improve living conditions, and unlock the economic potential of the district.

In the **Richtersveld Local Municipality**, these challenges will be amplified by anticipated population growth associated with green hydrogen development, which includes both induced and natural population increases, as well as net migration. Rapid development and population growth can create pressures that exceed a municipality’s existing infrastructure capacity, especially in regions that experience “municipal development distress”, i.e. rapid demographic and economic growth without a corresponding upgrade in physical and social infrastructure. To prepare for the Boegoebaai projects, RLM must address several key infrastructure needs: planning to prevent urban sprawl, additional housing, road upgrades, bulk infrastructure expansion, additional retail and commercial facilities, expansion of fibre communications; and educational facilities. The challenges arising from the Boegoebaai project are explicitly mentioned in the Richtersveld IDP.³⁸⁷

The **Richtersveld Conservation Development Framework (CDF)** includes the entire area of jurisdiction of the Richtersveld Local Municipality, with eight development objectives: Well-maintained roads; improved household and agricultural water security; improved accessibility and quality of education at all levels (childhood and adult); improved primary health care, hospital care and emergency medical services; improved communication and municipal services; sustainable job creation and small business development in all sectors; increase access to retail facilities, banks and petrol stations; ensure that the environment is properly protected, and training of local communities in conservation-linked knowledge and skills.³⁸⁸

³⁸⁶ DALRRD, 2022, National Spatial Development Framework, p. 53.

³⁸⁷ Richtersveld LM, *Integrated Development Plan*, 2024:88-89)

³⁸⁸ Richtersveld LM Spatial Development Plan, 2024, p. 82.

The prospect of the nearby Port and GH2 projects will present opportunities and challenges to **Nama Khoi LM**. Deteriorating roads and energy systems can be addressed through investment in new technologies and upgrades. Local towns will benefit from fibre telecommunications. This could lead to improved service delivery and job creation in the region. As argued earlier, Nama Khoi LM and Namakwa DM should lobby for the upgrade of the Springbok airport to enable scheduled flights and car rental facilities. However, there will be rapid population movements and substantial traffic pressures in the region. The town of Springbok may need to accommodate more businesses as a result of the “induced impacts” of the Boegoebaai projects, which may require an expansion of the central business district. The TVET college will probably need to be expanded, which may bring additional housing pressures.

The **Khai Ma LM** is important because it is a major hub in the SEZ. Pofadder will become a more important urban node for commercial and technical companies. The SEZ projects could stimulate investments in infrastructure, like roads, fibre and the energy grid, while offering job creation opportunities. However, without strategic alignment, these developments risk intensifying existing inequalities by diverting resources from basic services or excluding remote communities from benefits. To maximise positive outcomes, it is critical to incorporate inclusive planning that integrates non-urban areas, and enhance municipal capacity through training and updated management plans/

In **Kamiesberg LM**, several critical challenges related to water resources, ageing infrastructure, and revenue collection must be addressed to ensure that the municipality can play an important role as a tourist hub. The municipality's water supply is already under significant stress, and infrastructure is ageing and decrepit. Kamiesberg towns are likely to benefit from additional traffic on the N7 (servicing transport of materials for the Port and GH2 plant, as well as stay-overs for staff). Fibre-based communications may attract more “semi-grant” investors from the cities, who see opportunities in transport and tourism sectors. The town of Hondeklip Bay may grow as a tourist destination. This will place additional pressures on infrastructure. Additionally, the municipality faces ongoing challenges with revenue collection, which need to be addressed to ensure a stable cash flow.

Namakwa DM will need to play a crucial co-ordinating and planning role. As custodian of the District Development Model (DDM), it needs to “improve the coherence and impact of public and private sector investment and government service delivery within the Namakwa District, as a development space that can be used as a centre of service delivery and economic development”, based on a collaborative style of governance.³⁸⁹ The model seeks to create a unified, strategically focused “One Plan” for each district, ensuring coherence across all three spheres of government.

This is not an easy task. The failure of national and provincial agencies to engage with local government throughout the DDM process hinders these municipalities’ capacity to fulfil their developmental roles.³⁹⁰ In practice, this would require, at minimum, that the performance evaluations of provincial and national government departments include their active involvement in the DDM model. The DDM needs to influence a culture shift in the way government as a whole works and functions as a collective and how it works more effectively with private sector and civil society. The shift is away from “alignment of plans” between the three spheres of government towards a much more deeply collaborative planning process, where the One Plan is an expression of common understanding of the developmental situation and shared vision for the future with an agreed trajectory of logical interventions and actions to realize the desired future.

This lack of multi-level government coordination marginalises rural municipalities and highlights the centralisation of policy in South Africa’s industrial planning, particularly through SEZs and REDZs. This centralisation is evident from the early stages of the green hydrogen agenda, including the development and investment processes.³⁹¹ It reflects a failure to learn from past renewable energy projects in the Northern Cape, which left municipalities economically strained and with inadequate infrastructure.³⁹² Many practical difficulties regarding the DDM still need to be ironed out. The absence of dedicated budgets for catalytic projects has left crucial initiatives underfunded, stalling their progress and undermining the model's potential to drive meaningful development outcomes. The DDM also faces challenges due to unclear leadership roles and lack of clarity on who is responsible for implementing the One Plan, complicating

³⁸⁹ SALGA, 2021, District Development Model.

³⁹⁰ CoGTA, 2022, Namakwa District Municipality District Development Model.

³⁹¹ Nzo, T., 2021, Whose Power Is It Anyway?

³⁹² Borchardt, S, 2024, Shedding light on energy poverty.

coordination and accountability. This leadership vacuum, coupled with inconsistent support from provincial and national governments, hampers local municipalities' ability to execute the model,³⁹³

The Namakwa District Municipality needs to play the crucial role of co-ordinating all three spheres of government and mobilize the capacity and resources of government and civil society, including business, labour and community, in pursuit of inclusive growth and job creation.³⁹⁴ While the entire district will be influenced by this wave of industrialisation, the Namakwa DM needs to promote the key sectors of agriculture, agro-processing in tourism.

Regional social and economic cohesion is likely to be changed markedly. The main centre of economic gravity will move to Port Nolloth, and also Springbok, as the key government centre. The northern part of Namakwa will become more populated, and function as a locus of economic energy and innovation. The southern parts will remain more oriented to tourism, livestock agriculture, and small-town lifestyle.³⁹⁵

The technical expertise needed to support large-scale green hydrogen projects is currently lacking in the Namakwa District Municipality (NDM). Municipalities such as Khai-Ma, Nama Khoi, and Richtersveld are particularly affected by resource shortages and a lack of skilled staff, which makes it challenging to manage the sophisticated infrastructure demands associated with green hydrogen development. However, while the need for capacity-building is acknowledged, actionable plans to address these deficits remain underdeveloped.³⁹⁶

For ambitious green hydrogen projects to succeed in the region, targeted investments in training and institutional development are essential. This includes equipping local governments with the technical knowledge and administrative capabilities necessary to oversee planning and infrastructure provision for renewable energy projects.³⁹⁷

With the approval of these projects, the SPLUMA-based system of planning regulation will need to be implemented in earnest. The risk, in this regard, is that local municipalities are not familiar with these legal measures, and this may delay approvals. Municipal regulatory capacity will need to be built; in the interim, the District Municipality and Northern Cape COGTA may play a support role. Where municipal agreements with private and non-government organisations are entered into, these will need to be evaluated for effectiveness and fairness. Project-level authorisation conditions may be laid down by National and Provincial Government. In all these cases, a strong level of Collaborative Governance will need to be established, to protect municipalities' role in decision-making and to prevent national and provincial domination of the municipal sphere.³⁹⁸

A general caveat is that planning processes should not lapse into a heavily technocratic approach. In fact, the process may be held up by legal challenges. A public consultation approach will have to be very robust to avoid such obstacles.

A critical aspect of municipal functioning will be improved levels of disaster management capability. This is a complex sector, and will require a full assessment of the prevailing situation in the Richtersveld area specifically, and Namakwa District, in general. Institutional relationships, authority structures, funding systems, and skills sets, are often highly inadequate.³⁹⁹ Richtersveld LM will be catapulted into a very modern industrialised setting, where risks and disasters may be technically challenging.

³⁹³ Teti, M., Nzewi, O., & Lungisa, S. 2024. The district development model as a catalyst for improved integrated development planning.

³⁹⁴ Namakwa DM, 2023, *Integrated Development Plan*, p. 23.

³⁹⁵ This point was inserted in response to public reviewer comments.

³⁹⁶ Wessso, R and Brandt, F, 2023, Beneficial Technologies (Bentec) Green Hydrogen Community Development Toolkit.

³⁹⁷ DALRRD, 2022, Spatial Development Framework, p. 143.

³⁹⁸ This point was inserted in response to public reviewer comments.

³⁹⁹ Atkinson, D, 2021, Preparing for the worst.

7.7 THE PUBLIC ENGAGEMENT PROCESS

With the prospect of Boegoebaai investments, the need for public engagement will become immense. In the past, renewable energy projects were often associated with exclusionary practices that resulted often in marginalised communities feeling disconnected from the planning and implementation of green hydrogen projects.⁴⁰⁰

There was no consultation with communities in the compilation of the SEA. The SEA relies on secondary sources, scholarly literature and consultants' reports, across several disciplines. The SEA argues strongly for a robust community participation process, not to "sell" the insights of the SEA, but to obtain communities' views on proposed projects and policy measures. This chapter emphasises that there must be opportunity for repeated iterations of community engagement, to obtain diverse views, preferences and options; to compile practical proposals around them; and to consult yet again about the usefulness of those suggestions, and further options.⁴⁰¹

7.7.1 Public participation in a contested environment

7.7.1.1 Learning from the mining sector and renewable energy

In the rapidly emerging field of GH2 literature, the theme of effective public participation features strongly. This is based on a long experience of mining and renewable energy projects, where community engagement has often been honoured more in the breach than the observance. One of the lessons has been that, in Africa, the very nature of engagement processes can have counterproductive results. "People are often alienated by the focus of the energy reform design often framed within a restrictive language of technicalities such as technology transfer, industry competitiveness, cost recovery, financial risk or cost-benefit analysis, planning, private sector investment/finance, capacity building and other factors, with half-hearted commitments to genuine popular participation in the reform process".⁴⁰²

"Extractivism" refers primarily to mining, but it is increasingly used as a critique of technicist and centralist approaches to renewable energy projects. It typically refers to the extracting of natural resources, providing local jobs while the enterprise lasts, and then departing (leaving communities holding the proverbial handful of feathers). The failure of the Department of Mineral Resources to hold companies to account for implementing social and labour plans and environmental rehabilitation schemes plays into this narrative. Furthermore, the orientation of GH2 towards exports appears to be oriented to international markets rather than domestic welfare – indicating that the widespread domestic use of GH2 has not been effectively explained to communities.

The proponents of the Boegoebaai projects should make it their goal to achieve a real, robust "Social Licence to Operate" (SLO) from the local communities. The mining sector has developed significant expertise in this field, and this can be harnessed for the sake of maximising the Boegoebaai projects' chance of success. In mining operations, community dynamics have often been stressful, and painful lessons were learnt. There is a growing appreciation for context-specific development factors, guarding against "one size fits all" engagement approaches.⁴⁰³ Key determining factors include existing socio-economic and demographic structures of towns, the political economy of the resource itself, the role and behaviour of companies, and regulatory and institutional structures.⁴⁰⁴ Other key characteristics include climate, terrain, natural amenities, distance from metropolitan areas, local skills, leadership styles, poverty rates, age profiles,

⁴⁰⁰ Nzo, T, 2021, *Whose Power Is It Anyway*; Nzo, T., Mahabir, J., 2023. Inclusive and decentralized renewable energy development.

⁴⁰¹ This point was added in response to public reviewers of the chapter.

⁴⁰² Nzo, T (2021) *Whose Power Is It Anyway?*

⁴⁰³ Tonts, M et al, Socio-economic wellbeing in Australian mining towns

⁴⁰⁴ Chapman, R. et al, Resource development, local adjustment, and regional policy.

educational attainment, population density, culture and lifestyle.⁴⁰⁵ Social dynamics are profoundly influenced by human agency (whether that of leaders, followers or institutions).

In Namaqualand, the experience of diamond mine closures has been painful. Significantly, much of this anger stems from the poorly managed Richtersveld diamond fields restitution claim, which some local residents maintain have not translated into any tangible benefits for the local communities. There is already a large inherited stock of grievances in Namaqualand which have never been fully addressed: Mines' use of traditional land, their failure to rehabilitate environmental damage, their century-old lack of proper engagement with communities or unwillingness to think about a "social licence to operate", the recent Richtersveld land claim with its apparently unimplemented outcome, the arrival of illegal miners on land which should be managed properly by government or mining companies, the unresolved emotional hurt caused by constraints on land ownership by coloured people under Apartheid, and the bedrock of ethnic Khoi and Nama cultural grievances in the face of white colonialism, western cultural domination and the loss of land for over a century – these deep-seated concerns will require a very different form of public engagement.

An additional complication is the language issue in Namaqualand. The use of Afrikaans in the public participation process will be important for almost all Namaqualand stakeholders. This will require the recruitment of a native Afrikaans speaker as facilitator. In addition, the challenge of technical and scientific terminology can be addressed by highlighting key points requiring strategic decision-making. This would include factors such as the kinds of jobs that may become available; possible options regarding employee housing and transport; possible training schemes; and ways in which outlying communities can benefit from these projects. It should also highlight the risks of the projects, and the communities' risk appetite for such issues, e.g. in-migration of workers from elsewhere, and pressure on housing.⁴⁰⁶

Where participants need additional information, subsequent iterations of the consultation process (e.g. local workshops) can be organised, presenting fresh information and options for public discussion. The point is important that "participation does not imply consent". It is also important that participants realise that any development process will involve risks and opportunities, and that any way forward will involve opportunity costs (i.e. development paths *not* chosen, and therefore the loss of certain benefits).

7.7.1.2 Difficulties envisaged in the Namaqualand region

There is already a reputational problem regarding the consultative process surrounding the Boegoebaai projects. This is not surprising, since any sophisticated high-tech proposal needs to involve several constituencies at different levels, ranging from the highest levels of government and investors to local communities. It is almost inevitable that such discussions will not become "out of synch" with one another. A great deal of behind-the-scenes technical research had to be done, before there is any "Go/No Go" commitment to the project. At the same time, rumours of potential projects start circulating at grass-roots level, without sufficient information to put it into context. Public representatives, such as Councillors, are caught between technicist consultations and community anxieties. It is very likely that mixed and incomplete messages will go out into the world, and will stimulate cycles of suspicion and resentment.

Mistakes have been made in the past, in various sectors. Public participation may be manipulated through the government and/or investors who cherry-pick individuals who are viewed as the 'people's representatives' on official structures but who do not enjoy popular representational legitimacy in the community. At the same time, the community maybe selectively consulted on a project according to an existing agenda that the community has not been given an opportunity to shape the formulation of the agenda. In this case, the community's input is only used to further endorse this existing agenda. After some fieldwork in the Richtersveld, Dr Thina Nzo found that "This practice has been observed in the public participation process in the green hydrogen development in Richtersveld LM". This is not an auspicious start.⁴⁰⁷

In the Richtersveld, previous consultation processes on the land restitution claim were uncertain and often muddy. The costs and benefits of that process still remain unclear to local people. The Boegoebaai proposals

⁴⁰⁵ Hays, J et al, Considerations for the development of shale gas in the United Kingdom.

⁴⁰⁶ This point was added in response to public reviewer comments.

⁴⁰⁷ Nzo, T, Mahabir, J., 2023. Inclusive and decentralized renewable energy development, p. 47-51.

therefore land on a terrain that already has unresolved memories of conflict and even betrayal. In addition, there are concerns of ecologists about environmental damage, and other suspicions related to international trade, corporate profit, and possible economic exploitation. The situation could hardly be more complex; and it will require a concerted strategy to plan a genuine interactive process of consultation, where a real give-and-take of information and suggestions can take place.

Nzo (2023) found that, during a focus group discussion with community activists in Namakwa DM, many members expressed acute levels of disenchantment with the way in which the Northern Cape provincial government and local municipalities (in particular the Namakwa DM) have handled public participation concerning developments in the past as well as the present-day development of Boegoebaai port and green hydrogen development. Community activists view the Richtersveld community having a shared history of social and economic connections with neighbouring former ‘coloured’ communal areas in all parts of the district. Certain local people lamented the fact that their councillors do not even inform or distribute information widely to the communities about the consultative meetings. They spoke against the centralised approach adopted by local and national government departments when conducting public participation, where sites of public engagements are conducted in a central town, leaving out communities from neighbouring settlements. who are expected to use their own resources and transport to attend public consultation meetings.

Sometimes their criticisms take on a party-political flavour. Some local people claimed that certain members of the community of Richtersveld, who are known supporters of the African National Congress (ANC), are co-opted to participate in public consultation processes because they are likely to not question the development and issues related to long-term benefits for the community. *“They [local politicians] are using their comrades in the CPA and community to endorse the decision-making processes regarding the leasing of Boegoebaai land. They no longer want to work with the rest of the community because communities ask tough questions. That’s why councillors mobilise branch members to attend these so-called consultative meetings. Sometimes they even bus them to these meetings... held by the NCEDA, OTP, Sasol and Department of Economic Development ... When some of our activists came to the meeting, they were not allowed inside the venue and they were forcefully removed from the venue because they viewed as rabble rousers.”*⁴⁰⁸

If such claims are circulating, then there are indeed local concerns about the integrity of the participation process.⁴⁰⁹ Community activists claimed that there is no transparency in the consultation and negotiation process of the Boegoebaai land acquisition led by both local and provincial government. They felt that the Northern Cape provincial government is ‘selling them out’ instead of protecting their interests as a vulnerable community that has a history of colonial exploitation. They have alleged that institutions are making agreements behind closed doors with German investors and SASOL, and not involving them in decision making. They claim that these projects form part of a neo-colonial structure where much of the innovation and ownership for the development is perceived to belong to the investor — usually investors from the global North — with the South African government simply facilitating the investment.

These observations are cited here at length, because it illustrates the difficult terrain which any consultative exercise will encounter. Proponents of the Boegoebaai Port and GH2 will need to create a task team of facilitation experts to start the consultation process all over again. Certain basics will have to be addressed, like explaining what GH2 is, how it works, how the project will function, what kinds of jobs will be created, what training will be required and how it will be provided, how income flows are likely to be generated and funds spent. Ideally, this should be a people-driven process, in the sense that the task team should respond to community assertions and questions, in a process of shared understanding. Some meetings will need to be broadly open to the public, while it may also be valuable to create community discussion teams which can interrogate issues more closely.

This is a far cry from the “tick-a-box” methods of public participation typically used by municipalities, Departments, SOEs and renewable energy companies.

⁴⁰⁸ Nzo, T., Mahabir, J., 2023. Inclusive and decentralized renewable energy development, pp 50-3.

⁴⁰⁹ In 2022, Nama Khoi Productions, in collaboration with youth from the Richtersveld area, organised a theatrical performance as a response to widespread dissatisfaction with the public consultation process for the Special Economic Zone (SEZ) and the Boegoebaai Green Hydrogen project. See Koteli, T. 2022. Theatrical demonstration against government in Northern Cape, OFM.

Special effort needs to be taken to include women and young people in the public engagement process.

7.7.1.3 Current mobilisation in Namaqualand

The VVT Namaqualand⁴¹⁰, an abbreviation for the Free, Prior, and Informed Consent group (FPIC), is advocating for greater transparency and respect for the rights of indigenous people in the decision-making process. The protests highlight the need for inclusive development to ensure that local communities, especially marginalised ones, benefit from such large-scale projects, and that their voices are heard in discussions about land use and environmental impacts.⁴¹¹

The VVT argues that locals, who only recently received their land rights after decades of struggle, may face further land losses due to the development of green hydrogen on 45,000 hectares of land. They also question the promised jobs associated with the green hydrogen and Boegoebaai port development projects, stating that these opportunities are not suitable for local residents, who are predominantly farmers and fishers. Many of these individuals are not interested in retraining as port workers, nor do they possess the necessary skills for these jobs.⁴¹²

The Right to Say No (R2SN), an activist network consisting of more than twenty organisations, connects different struggles against extractivism across Southern Africa, aiming to challenge a development model that operates in favour of profit and at the expense of people and the planet. R2SN questions the access to and distribution of energy, and also envisages a just energy transition that favours the rights and lives of the people. It also promotes the principle of FPIC, which would in fact entail envisaging alternative pathways to just and sustainable energy futures. “Shedding light on alternative practices and visions during this critical juncture contests capitalism’s systematic obliteration of alternatives”.⁴¹³

Other activist and youth associations such as Environmental Traits (ET) a youth-led association established with support from the Environmental Justice Fund, focuses on addressing environmental and food security challenges in Port Nolloth and surrounding areas.⁴¹⁴ The group actively engages in protests against oil and gas activities along the West Coast, particularly in Port Nolloth, while also raising awareness about the potential socio-environmental impacts of green hydrogen projects and the development of the Boegoebaai Harbour. ET’s mission is to empower youth to become agents of change within their communities, with a focus on promoting food sovereignty, environmental sustainability, and community-driven actions for a just transition.⁴¹⁵ Youth and future generations will have to bear the often-unintended consequences of project decisions.

These protests underscore the community's deep attachment to their land and cultural identity, highlighting their fears of losing not only land but also their heritage and way of life. The R2SN campaign is actively engaged in raising awareness about the risks of leaving communities behind in the energy transition. The campaign emphasises the potential environmental destruction and toxic impacts associated with energy developments. These concerns are rooted in past experiences with mining companies, which often neglected proper environmental rehabilitation.⁴¹⁶ The current impasse between communities, illegal miners and the new Lower Orange Mining company, which purchased several defunct diamond mines, creates an atmosphere which is not conducive to trust in either GH2 or the Port development. There is a growing concern about the legacy of environmental destruction left by previous companies, and the likelihood that this damage may never be repaired. Consequently, the R2SN movement calls for just and inclusive energy transitions that prioritise environmental protection while safeguarding the rights and interests of local communities.⁴¹⁷

⁴¹⁰ Afrikaans: Vrywillige en Voortdurend Volledig Ingeligte Toestemmingsbeweging (VVT)

⁴¹¹ Human, L. 2024. Namaqualand communities call for moratorium on all new mining rights.

⁴¹² Pier and Hlabane. 2024. Reclaiming power: Shifting geographies of extractivism in South Africa; Parkin, M. 2024. Perspectives on Green Hydrogen Development in the Richtersveld Local Municipality; Hendriks, U. 2022. Some Northern Cape coastal communities oppose multi-billion-rand development projects, SABC News.

⁴¹³ Pier and Hlabane, 2024, Reclaiming power: Shifting geographies of extractivism in South Africa.

⁴¹⁴ Website: <https://www.facebook.com/people/Environmental-Traits/100089661501876/>

⁴¹⁵ Masifundise Trust, 2024. Youth group tackle environmental challenges in fishing community

⁴¹⁶ Groenewald, Y. 2019. Richtersveld diamond deal leaves locals with the dirt; Hendriks, U. 2022. Some Northern Cape coastal communities oppose multi-billion-rand development projects, SABC News.

⁴¹⁷ Pier and Hlabane, 2024, Reclaiming power: Shifting geographies of extractivism in South Africa.

The proposed Boegoebaai harbour development linked to green hydrogen production in the Northern Cape has sparked concerns among small-scale fishers. Many fear that corporate interests will take precedence, potentially harming marine ecosystems and undermining local livelihoods.⁴¹⁸ The Masifundise Development Trust argues that the project lacks proper public consultation and threatens the fishing economy, asserting that the port is primarily intended to serve mining activities rather than benefit local communities.⁴¹⁹ Small scale fishers pointed to the lack of public consultation regarding the proposed Boegoebaai port; this feeds into concerns related to off-shore oil and gas exploration.⁴²⁰

Environmental concerns have also attracted attention. Environmentalists, led by Pieter van Wyk, are actively working to protect the sensitive areas of the Richtersveld from development projects, including large-scale green energy initiatives like wind farms, solar farms, and the GH2 plant.⁴²¹ They argue that these developments pose a significant risk to the biodiversity of the Namaqualand region, home to many rare plant species.

It is not always easy to discern what the underlying concerns of mobilised communities are, and it takes time to “unpack” different strands of opinion within communities. There may be several layers of discontent. Some groups do not categorically oppose the development of green hydrogen projects but rather protest against exclusionary practices that may prevent them from benefiting economically. Their concerns centre on the lack of meaningful engagement, which may result in limited access to the economic benefits of large-scale development projects. For example, some community members believe that all jobs will be given to outsiders.

All four municipalities have raised concerns about the lack of youth participation in public consultation processes in their annual reports and IDP documents. This issue is particularly relevant for Boegoebaai-related engagement, where the inclusion of youth voices is crucial, as they may be the main focus for training and employment.⁴²² Engaging youth in local governance can foster social cohesion, build community capacity, and contribute to more innovative and inclusive policy outcomes.⁴²³

This is easier said than done. “The youth”, as a category, is typically not well organised, and range from fairly well educated and employed people (e.g. working at a business or municipality) to young people not in education, training or employment. Where “the youth” are organised, it may be a small group of activists who have strong feelings about public matters, who are networked regionally and nationally, and influenced by broader debates. As with all blanket categories, it is likely that the youth cohort is also divided along several lines. Some may welcome the new projects, and trust that they may access training and jobs; others may worry that the community is going to be cheated out of its rightful share of benefits. Some young people may welcome engagement with corporates as an opportunity for growth and advancement, while others may be more prone to see relationships of economic exploitation.

Nevertheless, it is critical to engage as many players as possible, and to explore the various discourses they offer. There may be low-hanging fruit, in terms of finding points of consensus; but on more challenging matters, it is important to engage properly with various standpoints, in order to determine the veracity of facts and the normative underpinning of opinions. Many misunderstandings can be resolved through a process of explanation (e.g. what waste products are created by green hydrogen, and how will that be managed?) while others will require more in-depth discussion and negotiation (e.g. what kinds of training should be offered?)

7.7.1.4 Re-thinking institutional culture: Beyond technicism

The practical functioning of the political system at local level is often conflictual and contested. There is inter-party competition (often overlaid by racial identities), as well as ongoing intra-party conflicts within the

⁴¹⁸ Sinxo, Z., 2022. Boegoebaai harbour a bit fishy, fear small-scale fishers.

⁴¹⁹ Website: <https://www.masifundise.org/>

⁴²⁰ Human, L. 2024. Stop new mining on West Coast, say fishers/

⁴²¹ Bakker, A. 2024. Flowers in the Desert: The Biggest Rescue Operation in Years in South Africa.

⁴²² Ansell, C., & Gash, A. (2008). Collaborative Governance in theory and Practice; Checkoway, B., et al, C., 2005. Youth participation in public policy at the municipal level.

⁴²³ Cousins, B and Ruth H. 2011. Rights without illusions; Jacobs, P et al, 2003. Land redistribution, Evaluating Land and Agrarian Reform in South Africa.

majority party (the African National Congress). Local disputes are often affected by political party dynamics, creating a potentially volatile political environment. Given that municipalities are key role players, but are profoundly influenced by party politics, the scope for political influence (or impressions of political influence) looms large. Allegations of corruption and dysfunction within the community's governing bodies, such as the Communal Property Association, add to the discord.

At a deeper level, the protests are triggered by the style of intervention adopted by central and provincial government and other agencies. Typically, these proponents of new projects are technicist and task-oriented, focusing on the myriad technical details of these complex projects. Even when such projects proponents can credibly promise benefits such as jobs, their approach to the subject could be experienced as high-handed and excluding any real consensus-building.

Community members do not know whether to trust such “powerpoint styles of consultation”, which may seem to be more of a glib public-relations exercise rather than a genuine give-and-take of ideas. The demand for the opportunity to imagine alternatives to the prepared script presented by government officials or corporations should be seen in this light. Thus far, policy documents pay lip-service to the need for public engagement. However, there is a lack of clarity on how this inclusion will be achieved. Effective community engagement requires a mind-set of genuine knowledge-sharing and problem-solving. “Knowing all the answers beforehand” is not a useful approach.

Technicists are often deeply uncomfortable in the messy world of opinion-sharing. For this purpose, a reputable agency which focuses on facilitation should be commissioned to participate in the entire planning and implementation process, and throughout the project life cycle.⁴²⁴ Such an agency would be able to facilitate the participation of the community members, and the give-and-take of ideas, in a way that does not obstruct technical decision-making. The relevant authorities (such as NCEDA) will need to be closely involved to listen and be genuinely responsive to community members' concerns. Win-win scenarios need to be explored in the Namakwa District generally and the Richtersveld area more specifically. There are numerous approaches available in different sectors, and it will require a team with experience in facilitation and mediation to manage the public engagement process. This has to be properly planned, institutionalised and funded by the Northern Cape Government.

In fact, effective community engagement is an asset, not only to identify potential conflicts and to allocate resources. It goes much further: The cohort of community leaders should be involved as much as possible in structured planning and decision-making. This takes time and courage, and is not an easy task. There may be issues on which a total and irrevocable conflict appears to emerge; but with sufficient engagement, such cases could be minimised. Even then, with creative thinking, some solutions may be found, either based on re-allocating budgets, changing spatial plans, establishing institutions, and creating new collaborative decision-making networks. Civil society organisations, such as a local chamber of commerce, a tourism forum, an agricultural association, a youth club, an environmental NGO or a heritage society can be coaxed into existence, to create platforms for meaningful exchanges of views, inputs and interests.

In principle, the Northern Cape Government has endorsed the importance of community engagement. The 2019 PDGP emphasises the requirement of inclusivity: “Development planning attempts, in principle, are to involve all those who are affected by it. Thus, integrated planning is in essence based on the principle of inclusivity.”⁴²⁵ The PGDP summarised the key interventions in the spatial planning sector, with community engagement included as an intrinsic element.⁴²⁶ Significantly, it also emphasised the importance of facilitation change agents and NGOs in ensuring community development.

In the Boegoebaai context, the key drivers of such consultative processes must be the Northern Cape Government (NCEDA), with an overarching participatory plan; and as well as the new Port Authority and GH2 project management. The relevant municipalities need to be incorporated into high-level planning for the participatory process, to consider ways in which existing participatory structures (councillors, ward committees) and new fora (such as project site committees) can be used to structure public engagement.

⁴²⁴ Borchardt, S. 2024. Shedding light on energy poverty: Household energy challenges in De Aar; Malope, B. 2024. A just transition in the Karoo?

⁴²⁵ Northern Cape, 2019, Provincial Growth and Development Plan: Vision 2040, p. 191.

⁴²⁶ Northern Cape, 2019, Provincial Growth and Development Plan: Vision 2040, p. 194.

7.7.2 The difficult world of Community Property Associations (CPAs)

From the point of view of the proponents of Boegoebaai projects, effective consultations with affected community groups will be even further tested in the context of CPAs. The challenges facing Community Property Associations (CPAs) are multifaceted, because of a very long history of often inappropriate policies imposed by government authorities. The Richtersveld CPA, as the owner of the land earmarked for the Boegoebaai investments, is clearly a very important potential agency to engage.

Community Property Associations (CPAs) are pivotal in the development and management of land-based resources, especially within rural contexts. According to agricultural sector studies, CPAs are integral to the governance and sustainable use of communal land, as they oversee the management of common property, dispute resolution, and the fair distribution of benefits.

The Richtersveld community has already undertaken several court cases in the last few decades, thereby asserting a local identity and building confidence. During the 1980s, the South African state made a concerted effort to replace the system of communal tenure that has prevailed since the nineteenth century with various forms of individual tenure. People in several of the reserves, led by Leliefontein, took the state to court over this issue in the 1980. The experience that had been acquired in these instances stood the Northern Richtersveld people in good stead when the national park issue came to a head in the early 1990s.⁴²⁷ This highlighted some of the fault lines in the Richtersveld community. When the park was set up, it was run by an authoritarian Management Committee. Local Nama residents, unhappy with this, formed their own Community Committee to resist the way the Management Committee handled the residents' interests. By 1991, the effectiveness of this peoples' group had increased, and they now play a major part in the management of the park, gaining the right to farm areas of the park's land, and increasing their standard of living and cultural identity.⁴²⁸

The history of the Richtersveld is particularly complex. It includes questions of land inheritance, dispossession and reclamation; Khoisan and Nama identity and culture⁴²⁹; mission history and the subsequent decline of these religious institutions; indigenous patterns of agriculture and controversial land tenure innovations; encroachment by diamond mines and white farmers; the in-migration of a group of "Baster" people in 1949 and their capture of the local Council; attempts by Government to impose grazing regimes; the shifting fortunes of migrant labour in the mines and elsewhere; the growing entrenchment of multiple livelihoods for local households; the changing class structures, particularly in the north and the south of Richtersveld; the complex local relationships of collaborating and reciprocity; the changing party-political and social identities of the residents⁴³⁰; and the establishment of the Richtersveld Park and the World Heritage Site.⁴³¹ This formidable list is just a superficial rendition of the complexity which underlies Richtersveld social organisation.

The Richtersveld Community Property Association (CPA) was formed after the community successfully pursued a land claim in 1998, that was finalised in 2007. This judicial decision recognized the community's traditional rights to land that had been taken during the apartheid era, particularly focusing on areas that had been used for mining, agriculture, and residential purposes. The restitution awarded significant land rights, including agricultural farms, the township of Alexander Bay, and mining areas, totalling 195,000 hectares. Winning this court case was far-reaching in its implications. Richtersveld Community and Others v. Alexkor Ltd and Another was the first case to consider whether aboriginal title is part of South African law. Aboriginal title means a proprietary interest in land recognized in common law jurisdictions such as Canada, the United States, Australia and New Zealand. It recognizes the prior occupation of those territories by aboriginal peoples before the arrival of settlers or colonization.⁴³² The developmental implications are immense.

The land restitution case in Richtersveld was a notable achievement for the CPA. In fact, compared to land restitution cases elsewhere, the Richtersveld CPA built a significant degree of social cohesion, and engaged

⁴²⁷ Sharp, J and Boonzaier, E, 1994, Ethnic Identity as performance: lessons from Namaqualand.

⁴²⁸ Boonzaier E.A. (1991) People, parks and politics.

⁴²⁹ Sharp, J and Boonzaier, E, 1994, Ethnic Identity as performance: lessons from Namaqualand.

⁴³⁰ Robins, S. 1997. Transgressing the borderlands of tradition and modernity: Identity, cultural hybridity and land struggles in Namaqualand (1980–94

⁴³¹ Boonzaier, 1987, From communal grazing to 'economic' units.

⁴³² Ulgen, O, 2002, Developing the doctrine of aboriginal title in South Africa.

fruitfully with Government and Alexcor.⁴³³ This successful process was supported by NGOs and scholars – which sets an example of how complex technical negotiations can be managed in future.

The CPA's purpose is to manage the land and resources returned to the community, ensuring that it is used in ways that benefit all community members. The CPA is responsible for overseeing land management, economic development initiatives, and ensuring that resources are distributed equitably among the community. But this ostensibly straight-forward description of the role and purpose of the CPA is anything but straight-forward. In 1987, Boonzaier observed that "Management boards in many reserves (and, indeed, other decision-making bodies in other areas) are notoriously 'unrepresentative' and very often reflect only sectional interests".⁴³⁴ Given the intractable challenges of social and economic issues in the communal areas, this is hardly surprising. Democratic representation is never easy, particularly in contexts of intense and multiple lines of contestation.

The implementation of the restitution settlement has been fraught with challenges, including internal conflicts, leadership disputes, and issues related to the management of land and resources. Disagreements over membership (originally there were 4 500 participants in the claim⁴³⁵) and the allocation of benefits led to court cases and disputes over governance structures. The High Court appointed a person to oversee its operations for a period.⁴³⁶ There has been ongoing support from government agencies such as the Department of Rural Development and Land Reform (DRDLR), which has assisted in resolving disputes, managing membership lists, and ensuring that financial distributions are made to the community.⁴³⁷ Efforts have been made to streamline the CPA's governance and improve communication with members, though the legacy of conflict and mistrust remains a significant challenge. The Richtersveld CPA has clearly gone through a process of organisational growth and maturing.

In the context of the Boegoebaai Green Hydrogen initiative, CPAs would be crucial in facilitating community-level engagement by acting as intermediaries between external developers and local communities. By involving CPAs in such projects, there is potential to create a structured platform for community members to voice concerns, participate in decision-making, and negotiate for fair benefits.⁴³⁸ This involvement is essential to ensuring that development initiatives are inclusive, respect local governance structures, and align with the socio-economic priorities of the communities involved, ultimately promoting long-term sustainability and more equitable outcome.⁴³⁹ There are also valid lessons to be learnt from Richtersveld's previous experiences with conflict management and negotiation, in the context of the Richtersveld Park, where mediators, facilitators, researchers and NGOs played a crucial role in finding common ground between seemingly intractable positions.⁴⁴⁰

However, CPAs face significant challenges, such as limited financial resources, inadequate technical expertise, and difficulties in attracting investment for large-scale projects, which can hinder their effectiveness.⁴⁴¹

CPAs in Namaqualand face organisational difficulties. Understandably, these communities and farmers in one of the most remote parts of the world tend to have inadequate management and administrative skills among their committee members. Many members are elected based on popularity rather than competency, which is not surprising because trust is the essential element keeping under-resourced societies intact. Additionally, many CPAs struggle economically, relying on subsistence farming and lacking the operating capital needed for growth. They often face compliance burdens and may enter legal agreements without fully understanding their implications, risking their assets. Conflict can emerge among members where long-

⁴³³ EverinGH2am, M and Jannecke, C, 20026, Land Restitution and Democratic Citizenship.

⁴³⁴ Boonzaier, 1987, From communal grazing to 'economic' units, p. 488.

⁴³⁵ Everingham, M and Jannecke, C, 20026, Land Restitution and Democratic Citizenship.

⁴³⁶ Department of Government Communications. 2012. Department emphasises its commitment to Richtersveld Communal Property.

⁴³⁷ Department of Communications, 2012.

⁴³⁸ Walker, C, 2010, Land reform in Southern and Eastern Africa: Key issues for strengthening women's access to and rights in land.

⁴³⁹ Mnwana, S, 2021, Land struggles, class formation and social change in post-apartheid South Africa.

⁴⁴⁰ Glavovic BC 1996, Resolving People-Park Conflicts through Negotiation: Reflections on the Richtersveld Experience.

⁴⁴¹ Hall, R, 2009. "Another Countryside? Policy Options for Land and Agrarian Reform in South Africa."

serving committees are resistant to holding elections, which heightens tensions between committee members and the broader community,⁴⁴²

The Richtersveld CPA has been accused of maladministration, with some members arguing that decisions regarding land use and community engagement are being made without proper consultation with the broader community.⁴⁴³ These tensions are exacerbated by the lack of clarity about the potential benefits and risks of the proposed Boegoebaai investments. As the government continues to push for the project's development, these unresolved issues raise concerns about future community engagement and equitable benefits.

A pre-negotiation scoping should be undertaken by a reputable facilitator, to assess the ways in which each party to the discussions would prefer to participate. If necessary, some early obstacles may need to be addressed, such as people's time, resources, and general background information. The parties should each establish a trusted relationship with such a facilitator.

The effective functioning of the CPA may require a sustained and funded process of government support (from provincial level), with experienced and skilled facilitators, on a medium-term contract. Given the workload already with the provincial COGTA, one possibility is that this task be managed from the Premier's office, either directly, or through NCEDA. This would leave COGTA to focus on municipal support. The likely implementation of the Boegoebaai projects will make such interventions imperative.⁴⁴⁴

7.7.3 The Problem-driven Iterative Adaptation (PDIA) approach

The expansion of green hydrogen and other renewable energy initiatives in the Namakwa District Municipality has led to increased interactions between local communities, government agencies, and private investors. While these interactions offer opportunities for mutual benefit, they also present risks of exclusion, displacement, and unequal distribution of resources. New institutional mechanisms can foster cooperation and mitigate conflicts, with a particular focus on community-government partnerships, public-private collaborations, skills development programmes, multi-stakeholder land-use planning, and financial benefit-sharing models.

The (PDIA) approach to sustainable development emphasises adaptive problem-solving, stakeholder-driven decision-making, and continuous learning. This approach is also recognised in the *Provincial Growth and Development Plan* for the Northern Cape as a key tool for driving development in the region. The PDIA strategy "begins with generating locally nominated and prioritised problems and works iteratively to identify customised 'best fit' responses... in the process working with an expanding community of practice to share and learn at scale."⁴⁴⁵

The PDIA approach also encourages the state to ask four critical questions: "What drives action? How is action identified and carried out? What authority or leadership is required? Who needs to be involved?"⁴⁴⁶ PDIA offers a flexible and adaptive methodology for addressing complex policy and organisational challenges.⁴⁴⁷ Unlike rigid, pre-planned solutions, PDIA focuses on learning through experimentation and local adaptation to tackle "wicked" problems.⁴⁴⁸

Key Features of PDIA are:

⁴⁴² Cousins, B. & Hall, R. (2011) Rights without Illusions.

⁴⁴³ Human, L. 2024. Green hydrogen mega-project stokes community fears.

⁴⁴⁴ This point was added in response to public comments.

⁴⁴⁵ Andrews, M., Pritchett, L. & Woolcock, M. J. V. 2017. *Building State Capability: Evidence, Analysis, Action*, p. 5.

⁴⁴⁶ Northern Cape Province, 2019, *Provincial Growth and Development Plan*, p. 160.

⁴⁴⁷ Samij, Andrews, Pritchett and Woolcock, 2018, Samji, S., Andrews, M., Pritchett, L. and Woolcock, M. (eds.). 2018. *PDIA Toolkit – A DIY Approach to Solving Complex Problems*.

⁴⁴⁸ The term "wicked problem" refers to complex social issues that are poorly defined, involve conflicting values among multiple stakeholders, and have confusing consequences across the system. The term "wicked" highlights the tricky nature of these problems, where solutions often worsen the situation rather than resolving it (Lönngren, and van Poeck, 2020).

- Locally Defined Problems: PDIA starts with identifying and prioritising challenges as defined by local actors, ensuring relevance and ownership.
- Iterative Experimentation: Solutions emerge through repeated trial and error, rather than relying on predefined blueprints. Each iteration refines the approach, drawing lessons from past efforts.
- Authorising Environment: PDIA fosters a governance environment that encourages innovation and risk-taking, rather than strict compliance with static plans.
- Broad Participation: Engaging diverse stakeholders ensures that solutions are politically viable, legitimate, and sustainable.
- Maintaining motivation is crucial—leaders and implementers must stay engaged by continuously seeing the value of their efforts.
- Complex challenges require flexibility, cross-disciplinary engagement, and adaptive problem-solving.

PDIA recognises that development is not a linear process but rather a continuous journey of discovery and adaptation. People's views may change somewhat during the consultation process. Communities may well have mixed feelings, in two senses: Firstly, communities may be divided: Some people may support the project (e.g. for jobs) and others may oppose it (e.g. for heritage conservation). Secondly, individuals may have their own mixed feelings about it, e.g. appreciate the advantages of possible jobs and training, while also worried about the impacts on the local economy. After an in-depth consultation process, in which the potential advantages can be identified and strengthened, and the potential dangers identified and possible mitigation strategies considered, community members may come to different insights. People who were initially opposed to the projects may develop a cautious support of them; and those who initially supported the projects may become more concerned. This is a fluid process of evaluation and adjustment, which should be captured in the public consultation process. Eventually, however, democratically elected governments (national, provincial and municipal) need to make a decision, one way or the other, presumably while keeping their residents' feelings firmly in their mind.⁴⁴⁹

It is unrealistic to expect that a consensus will be reached at stakeholder level. There will be community members who are in favour of new opportunities, and are not put off by potential risks; there will be others who will want to protect the status quo, or to send development trajectories in other directions (e.g. heritage tourism or eco-tourism). These are legitimate positions on the likely *continuum* of views. It is impossible to predict either the ultimate views of community members, or the decisions of democratic authorities regarding the merits of proceeding with these projects. The Richtersveld CPA's role as custodians of the land clearly gives their views great importance, but it is quite likely that the members of the CPA (at all levels) will be divided on the merits of the Boegoebaai projects. The best one can probably hope for is to achieve "sufficient consensus", with as many proactive steps to address the concerns that people may have. What is quite unclear will be the outcome of the CPA and the Richtersveld LM fundamentally disagreeing about the way forward. Such an eventuality will test the creativity of the facilitator to find some points of agreement, and to present them to Government for a final decision.⁴⁵⁰

PDIA is not a one-size-fits-all solution but a strategic mindset that empowers policymakers, organisations, and reformers to navigate uncertainty, build state capability, and foster meaningful change.⁴⁵¹ Instead of implementing large, rigid interventions, PDIA focuses on trialling small solutions, learning from what works, and scaling up effective strategies. For example, In Richtersveld, a pilot project could explore how local businesses and cooperatives might supply services to the Boegoebaai project, rather than large external contractors.

As a complement to the PDIA approach, the "Sustainable Livelihood Analysis" (SLA) can be developed to focus on the capacities and strengths of the local communities.

⁴⁴⁹ This point was included in response to the public review process.

⁴⁵⁰ This point was included in response to the public review process.

⁴⁵¹ Northern Cape Government, 2016, *Provincial Growth and Development Plan*, p. 16, 63.

7.7.4 The Green Hydrogen Community Development Toolkit

The *Green Hydrogen Community Development Toolkit* (July 2023) is a guide for project developers in the green hydrogen sector, providing a structured approach to community development. It draws on the mining sector's Community Development Toolkit to address green hydrogen's specific socio-economic and environmental challenges.⁴⁵² Significantly, this helps companies secure a "social license to operate" (SLO) by ensuring meaningful local participation.

The toolkit is divided into five phases, each with specific tools for project implementation:

- Preparation/ Getting Companies Ready – Ensuring companies have the necessary competencies and management systems in place.
- Relationships – Stakeholder identification, analysis, and engagement strategies.
- Planning – Community mapping, institutional analysis, and impact assessments.
- Programme Implementation – Development of action plans, conflict resolution mechanisms, and local economic investment strategies.
- Monitoring, Evaluation and Learning – Developing indicators and log frames for assessing project success and community impact.

The toolkit is not meant to be used sequentially from Tool 1 to Tool 5, as some tools overlap and using them all at once can overwhelm both the project team and the community. A more effective approach is to remain flexible, selecting tools that align with the project's current objectives and phase of development.

Stakeholders have varied needs and preferences regarding participation. There should be different ways in which people can engage - whether they prefer to receive information, be involved in meetings, actively contribute to planning, or take part in monitoring and development programs. Establishing Stakeholder Advisory Committees will ensure that historically marginalised voices are represented in decision-making. Digital engagement tools, such as WhatsApp groups, SMS alerts, and local radio, can reach communities with limited access to traditional public meetings.

A Social Impact and Opportunity Assessment (SIOA) is an essential tool for evaluating the social impacts and opportunities of a project. It helps update or establish baseline social data, particularly when no baseline study has been conducted. The SIOA assesses potential impacts, identifies development opportunities, and collects data for monitoring and evaluating specific projects. It also facilitates engagement among stakeholders, including marginalised groups like women, to share views and build consensus on the project's impacts. Conducting SIOAs periodically, especially during key project stages such as construction or closure, is essential to track changing social dynamics and ensure the project remains responsive to community needs.

Community Environmental Monitoring Boards, composed of trained local representatives, can oversee compliance with environmental standards. Dispute Resolution and Grievance Mechanisms must be clear, fair, and transparent to maintain good relations between developers and communities. Participants can draft and implement legally binding Community Benefit Agreements (CBAs) to guarantee that commitments made to local communities are honoured and upheld.

To ensure that green hydrogen projects continue to deliver tangible benefits to local communities, it is essential to establish mechanisms for long-term monitoring and adaptive management. These strategies promote sustainable development by providing ongoing oversight and facilitating adjustments to projects as needed. The following approaches are useful for achieving effective long-term success:

- Conducting independent third-party evaluations to assess social and economic impacts.
- Integrating adaptive management strategies, allowing policies and project operations to evolve based on feedback and changing socio-economic conditions.

⁴⁵² Wesso, R and Brandt, F (2023). Beneficial Technologies (Bentec) Green Hydrogen Community Development Toolkit.

- Developing community-led monitoring programmes, where local stakeholders play an active role in tracking project outcomes and holding developers accountable.
- Appoint independent watchdog organisations to audit municipal spending and project compliance.
- Require that a percentage of project revenues be reinvested into local infrastructure, including roads, clinics, and water systems. This model aligns with large-scale renewable energy projects, which are mandated to contribute to socio-economic and enterprise development. Important lessons have already been learnt from community development efforts by renewable energy companies in South Africa.⁴⁵³
- Implement anti-corruption safeguards, including third-party monitoring of financial transactions related to community benefit programmes.

Incorporating these strategies will help create a framework for continuous improvement, ensuring that the projects remain responsive, sustainable, and beneficial to local communities over the long term. These approaches not only contribute to the success of individual projects but also provide valuable lessons for future renewable energy initiatives in similar contexts.

7.7.5 Free, Prior and Informed Consent (FPIC)

In the mining sector, painful experience of destructive relationships between mines and communities has led to a refinement of what “free, prior and informed consent” actually means. This is particularly relevant to indigenous groups who may be impacted by large investments.⁴⁵⁴ For IRMA, FPIC is not simply an isolated tool of engagement. It is part of a broad suite of normative principles, affecting all aspects of mining investments:

FPIC is based on a recognition that indigenous peoples have the right to self-determination, including their political status, and their economic, social and cultural development. They have rights to property, culture, and religion and natural resources, including sacred places and objects. They have rights to health and physical well-being, in relation to a clean and healthy environment; to pursue their own priorities for development; and to make authoritative decisions about external projects or investments.

In terms of this framework, communities have strong rights: “If indigenous people’s representatives clearly communicate, at any point during engagement with the operating company, that they do not wish to proceed with FPIC-related discussions, the company shall recognize that it does not have consent, and shall cease to pursue any proposed activities affecting the rights or interests of the indigenous peoples. The company may approach indigenous peoples to renew discussions only if agreed to by the indigenous peoples’ representatives”.

In terms of consultation procedures, the framework provides robust suggestions to promote constructive engagements:

- Identify the appropriate means of engagement for each group of indigenous peoples (thereby implying that different groups may prefer different modes of engagement)
- Identify indigenous people’s rights and interests that may be affected by the proposed activities (this should be a joint exploration of what the community’s key concerns are)
- Identify additional studies or assessments needed to determine the range and degree of potential impacts on indigenous people’s rights or interests (the parties can jointly decide to engage researchers or investigators who can provide new information or insights)

⁴⁵³ Borchardt, S.P., 2023. Illuminating Energy Poverty; Malope, B. 2024. A just transition in the Karoo?

⁴⁵⁴ These FPIC standards have been developed by The Initiative for Responsible Mining Assurance (IRMA). IRMA is a coalition of NGOs, affected communities, purchasers, investors, mining companies, and labor unions. Each sector has equal voice in IRMA governance. IRMA’s ultimate goal is for mines to leave **positive legacies**. https://responsiblemining.net/wp-content/uploads/2022/04/FPIC_IRMA-Community-Toolkit_21Sept27.pdf; <https://responsiblemining.net/what-we-do/standard/>.

- Identify if there are capacity issues that may prevent full and informed participation of indigenous people (the company shall provide funding or facilitate other means to enable the local people to address capacity issues in their preferred manner; this could include technical workshops, demonstrations, site visits, and other joint learning exercises)
- Ensure that the community as a whole has meaningful opportunities to be involved in these processes (there is a danger that representatives may become, or become seen as, “co-opted” by the project imperatives).

In the mining sector, mines can obtain IRMA certification that it has undertaken these measures.

These guidelines point to important procedural requirements, which will be challenging and onerous. They may also be interesting and rewarding, for all parties concerned, if approached in the right spirit. But the challenges are not simply procedural ones. There are three critical possibilities which raise profound philosophical issues.⁴⁵⁵ Firstly, what would be the future of the Port and the GH2 complex if the Richtersveld CPA decides that – after due reflection – it would like to preserve its pristine environment with all its symbolic significance, and would prefer that the entire project is cancelled?⁴⁵⁶ Can (or should) the Richtersveld community block a large investment which could have major beneficial implications for investors, work-seekers, employers, government agencies and other citizens in the region?

Secondly, what would be the status of a CPA objection to the project, if it is unclear that they do not represent *all* the Richtersveld residents? A minority of residents may well be enthusiastic about the potential benefits of the Boegoebaai project.

Thirdly, if the Richtersveld CPA were to block the investment project, their descendants (or young residents, who are not old enough to debate or to vote) may, in future, regret that turn of events. The CPA does not only speak for the current adult community (many of whom are elderly and have no prospect of getting jobs at Boegoebaai). They must also speak for the young generation, who may have important desires for material benefits, modernisation and career options. Whose voice should prevail?

With FPIC, the key challenge is to enable "informed consent", i.e. that local people have enough information to debate the advantages and disadvantages of the projects. This would require an iterative process of consultation, i.e. not simply a once-off procedure. As community representatives engage with these alternatives, their observations will affect other community representatives; who then need to apply their minds to these fresh insights. This is a lengthy process, and should be done with the utmost openness, transparency, inclusiveness, and good faith. Anything short of such an approach would create the danger and perception that Government rushed the project without a proper appreciation of local communities' sentiments. On the other hand, there should also be some time limit on the consultation process (it should not be endlessly extended), so that democratic governments can finally take a decision on both the project in principle, as well as possible amendments which arose in the process of public consultation.⁴⁵⁷

At this point, the chemistry of consultations may have to be utilised over and over again, to find some point of agreement as a bedrock for future collaboration. These questions illustrate the point that community negotiations are not simply procedural niceties. They are about absolute bedrock values. The challenge is to find ways to match up those bedrock values, and to see if there are potential constructive overlaps. South Africa has proven its ability for compromise and pragmatism. Our skill lies in finding compromises before potential benefits become derailed.

⁴⁵⁵ See Barry, M, 2004, Now Another Thing Must Happen: Richtersveld and the Dilemmas of Land Reform in Post-apartheid South Africa.

⁴⁵⁶ Note that such negotiations among proponents should not be interpreted as being insensitive to the Richtersveld community. It simply illustrates that any investment proposition requires a lot of conceptual spadework before it can be floated as a meaningful idea. This is quite compatible with a still-to-ensure public consultation and engagement process.

⁴⁵⁷ This point was included in response to the public reviewer process.

7.7.6 Conclusion: Positive legacies or a “sacrifice zone”?

Marginalised areas engage with new projects from the standpoint of a power deficit. Impressive new infrastructural and technical projects can be “rushed through” despite local communities’ concerns and objections. But there is a real danger that Richtersveld may become a “sacrifice zone”⁴⁵⁸ – an area disproportionately burdened with environmental, social and economic harm due to large-scale industrial projects. The Boegoebaai project does not have to fall into this trap. There are many potential benefits, from South Africa as a nation to Richtersveld as a remote community. But this will require effective engagement, in good faith, using well-trying facilitation skills to open up communication channels.

7.8 RISK ASSESSMENT

This risk assessment includes BOTH the Green Hydrogen project and the Port, as they are being planned together.

Mitigation efforts would have to be planned and co-ordinated by an inclusive regional strategic planning and management team. In the case of the Boegoebaai projects, mitigation efforts may also take the form of **CSI investments**. The most effective form of mitigation efforts will be those that are the result of community participation, buy-in and active support. The umbrella term “*management*” refers to efforts to mitigate risks as well as respond positively to opportunities.

In this very complex socio-economic analysis, it is challenging to outline all the potential risks and opportunities. Methodology is impressionistic at this stage, given that this is a broad-scope analysis. Specific project-related decisions would have significant impact on the risks and opportunities. The purpose of the risk and opportunity assessment is not to achieve exact findings, but to guide policy makers and programme managers about the likely scale of trade-offs that should be investigated as part of their planning processes, and through-out construction and operations.⁴⁵⁹

With each variable, there is a wide margin of error regarding uncertainty (e.g. different policy choices by municipalities), implementation failure (on the part of private companies or governments) or uneven benefit distribution (e.g. due to different types of responses by local communities to work and training opportunities). Each variable could have been analysed in much greater detail, and this must be done at a finer-grain stage of planning (e.g. if the project is improved in principle, and different sectoral agencies gear up to assess the implications for their particular mandate). The SEA is a higher-order analytical instrument, which will be available to guide sectoral experts in their more detailed scoping and analysis.⁴⁶⁰

Scenario O considered the level of government functionality as similar to current levels (i.e. facing difficulties, particularly in the Richtersveld). This raises the possible worst-case scenario: That the presence of the projects create such pressure on local municipalities, political parties, and agencies such as police and health that there is a virtual collapse of services, possibly accompanied by profound political conflict. A *further decline in institutional capacity* scenario was not considered, because one can assume that the presence of the projects will focus national and provincial attention on this region in a way never before experienced, and this would presumably work to undergird the current local government system.⁴⁶¹

There are often problems of unintended or unanticipated consequences, which will require conscientious and responsive management interventions. However, we can list the most obvious risks and opportunities:

Risks:

1. Rapid “boom” conditions will bring destabilising impacts in the economy and society.

⁴⁵⁸ A **sacrifice zone** refers to an area that is disproportionately burdened with environmental, social, and economic harms due to industrial or development activities, such as pollution or displacement, are borne by vulnerable and marginalised communities (Juskus, 2023, Sacrifice Zones).

⁴⁵⁹ This point was included in response to public reviewer comments.

⁴⁶⁰ This point was included in response to public reviewer comments.

⁴⁶¹ This point was included in response to public reviewer comments.

2. Disaster management capabilities may be insufficient and have to be expanded.
3. Road-based ore transport will hold major dangers for communities, road users, agriculturalists, and the tourism industry, and the construction of a railway line for ore transport will be imperative.
4. Ore-based dust at the airport would be a major problem for agricultural exports.
5. Construction transport will place pressure on local district roads.
6. In-migration of work-seekers and workers may crease social instability.
7. Local prices of goods and services are likely to increase, and this may be beyond the purchasing power of local people.
8. Housing shortages are likely to worsen in the short term, due to in-migration.
9. Industrialisation and increased traffic pressures would detract from the sense of space, remoteness and rich biodiversity of the region.
10. The port could promote copper exports.
11. Municipalities would face significant pressure to cope with developmental and planning challenges associated with the projects.
12. A major process of public consultation needs to be undertaken by effective and known specialists, able to manage a very delicate process effectively.
13. New systems of intersectoral and intergovernmental regional planning in the SEZ can promote economic development in the area.

Opportunities:

1. Job creation in the transport and green energy sector will expand rapidly, at all skills levels.
2. Property values are likely to increase.
3. Economic multipliers in the region will be stimulated, and small businesses may benefit from new opportunities.
4. Telecommunications will be improved significantly to the entire region.
5. The GH2 development may increase energy security for farmers, municipalities and households in the region, if renewable energy facilities are oversized and electricity grids expanded / strengthened.
6. The GH2 development may make new water sources available to local communities, if desalination facilities are oversized.
7. The Port and GH2 projects will entail improved health services in the region, including hospitals, ambulances and specialised health care.
8. The Boegoebaai port could become a tourist destination in its own right.
9. The Boegoebaai projects could be stimulus for an expansion of the Springbok airport, to offer scheduled flights, which would, in turn, stimulate tourism and business in the region.
10. Erstwhile Namaqualand residents, especially skilled people who are now living elsewhere, may return to the region to participate in these projects

The following table provides a breakdown per locality and per intensity of risks and opportunities:

Theme	NEGATIVE CONSEQUENCES (RISKS)				
	Slight	Moderate	Significant	Drastic	Extreme
Population growth	In-migration of a few professional people and artisans	In-migration of some professional people, artisans and manual workers	In-migration of substantial numbers of professional people, artisans, manual workers and family members of working people	Rapid influx of large numbers of professional people, artisans, manual workers, family members, new businesses, and work seekers	Influx of people which is greater than housing or infrastructure can manage; some informal settlements develop
Housing and municipal services	Some pressure on existing facilities, but still within existing ability of local communities to cope with demand	Substantial pressure on existing facilities, and some price increases in rentals	Rapid and sustained demand for housing, water, electricity and sanitation, significant increase in rentals, and local people enter the rental market, tourism accommodation booked out by professional and technical staff; tourism starts declining	Strong demand for housing, increased rentals, no tourism accommodation available and therefore decline in tourism activities	Heavy pressure on available housing, rental prices increase significantly, new formal and informal structures built to accommodate new-comers, infrastructure not adequate to cope with demand.
Health services	Slight pressure on existing clinics and hospitals	More demand for medical services; waiting times at state facilities increase; some private doctors attracted to the area	Rapid increase in demand for medical services at hospitals and clinics; ambulance services have to be introduced for specialised referrals and workplace accidents; more private sector professionals enter the area; increased HIV/AIDS services required	Substantial increase in demand; and upscaling of medical services required, which takes time and cannot keep up with demand; increased HIV/AIDS services required	Constant heavy pressure on facilities, outweighing the ability of state facilities to cope timeously with cases; private sector becomes major player to cope with work-place health needs
Social ills in boomtowns	In-migration of professionals lead to local people engaging in petty crime and attacks on property	In-migration of workers and work-seekers cause an increase in prostitution, teenage pregnancies, crime	Rapid in-migration of staff, workers, and work-seekers cause prostitution, teenage pregnancies, noise, crime and increased sense of insecurity	Increased crime and sense of insecurity lead to alienation and anonymity, disintegration of some families due to social habits of workers and work-seekers, established local people start leaving the area	Crime intensifies significantly; general sense of insecurity; social pathologies become prevalent (teenage pregnancies, school drop-outs, petty crime, property crime), more local people leave the area causing

					further fraying of the social fabric
Tourism	Some in-migration of professionals and artisans create pressure on tourism accommodation	Tourism accommodation increasingly difficult to find; accommodation prices escalate; traffic and petty crime escalate and detract from tourist enjoyment	Local ambience changes; accommodation facilities largely utilised by project staff; traffic and crime intensify; local towns' reputation start to suffer	Major disruption due to construction, heavy traffic, and crime; guest houses now exclusively cater for project staff; tourists reduce time spent in the area	The towns are now industrial hubs, and unsuitable for tourism
Agriculture	Some increase in traffic causes pressure on roads for agricultural trucks	Traffic increases and roads increasingly unsafe; some pollution and dust caused by ore trucks and other vehicles.	Some ore dust exposure - Ore trucking impacts on high-value agricultural export commodities; Traffic becoming unsafe	Ore dust exposure increases due to larger number of ore trucks; air pollution along highways; traffic and transport increasingly unsafe	Ore dust at the port makes agricultural exports impossible; agricultural producers resort to markets in Western Cape, and find other routes to avoid heavy traffic pressure.
Municipal capacity - technical	Some additional workload for municipal technical staff due to in-migration of some project staff	Technical staff confronted with issues they are not trained for; consultants brought in as advisers, new vehicles required	Technical and professional staff inadequate for rapid planning and maintenance challenges; new posts have to be created and staffed; more technical equipment and vehicles required	Rapid escalation of technical demands; more new posts have to be created, salaries have to be increased to attract professionals from elsewhere; more technical equipment and vehicles required; increasing pressure on municipal budgets	Municipalities under severe strain as planning challenges and maintenance problems escalate rapidly; staff have to be seconded from city municipalities; additional consultants required; more jobs have to be created; strong pressure on municipal budgets.
Municipal Governance and Public participation	Local people become aware of challenges and make their voices heard; ward committees and councillors still capable of engaging with new challenges	Increasing local concerns place more pressure on councillors; municipalities have to create posts for public engagement	Strong pressure for timeous community engagement, local political conflicts emerge, some issues become politicised	Increasing social and economic problems lead to local dissatisfaction and concerns; councillors and staff have to spend significant time creating new platforms to engage with citizens	Negative reports escalate in local and regional media; councillors and staff spent much time engaging with residents; problems become more complex and difficult to solve; politicisation leads to new political formations and conflict on councils, with electoral impacts

	POSITIVE CONSEQUENCES (OPPORTUNITIES)				
	Slight	Moderate	Significant	Drastic	Extreme
Job creation	Jobs are created for some professionals and artisans	Increasing demand for professionals, artisans and labourers	Strong demand for workers in all categories, particularly construction, salaries increase, some local technical training services	Strong demand for skilled workers, local training services improve, new graduates find work on the projects	Large number of jobs in all categories, better paid jobs, stable employment, creates inequalities in the community, large-scale local technical training established
Tourism	Slight increase in tourism due to curiosity factor; some business tourism for the Boegoebaai projects	More tourists arrive due to curiosity factor; more business tourism involving professionals, some from overseas countries	More pressure on tourist accommodation leads to increased supply of accommodation (however, this is counteracted by problems such as crime, traffic and social ills)	Rapid expansion of accommodation services brings some curiosity factor tourism; tourism sector mainly relies on business tourism	The port and GH2 projects become tourist sites and offer educational tours; business tourism remains strong
Skills development	Some training improvements at existing TVET college	More demand for technical jobs (from projects and work-seekers), additional training provided by private trainers	TVET college expands offerings; more private training services offered	TVET college established near project site, increased access to technical training for local people	Local TVET college expands and offers increasingly sophisticated courses to meet demand of projects as well as spin-off businesses
Telecommunications	Slight improvements in existing infrastructure	Introduction of fibre to main centres and project site	Expansion of fibre to more towns near main centres and project site	Expansion of wifi telecoms to outlying villages	Almost complete saturation of wifi in Namaqualand towns and villages

Impacts can be very different, if there is a concerted attempt to anticipate, pre-empt and manage risks. This can be done in effective or less-than-effective ways, and it will depend significantly on the focus, energy, creativity and sustained work of management agencies – as well as their responsiveness to key stakeholders. In sum, management interventions can affect both the likelihood and severity of risks. (In fact, there may be cases where negative outcomes may be turned in the direction of positive developments; or vice versa, where the likelihood of positive development may be undermined and even become a risk, if managers are lax or do not understand issues adequately).

Corporate social investment is one way of either reducing risks or amplifying potential benefits. In the table below, “with management” refers to either of these possibilities.⁴⁶²

A risk analysis is a high-level analytical method for policy makers and programme planners to create a conceptual “dashboard” of likely negative or positive outcomes, and therefore potential areas of intervention. Significantly, there has been very little community participation at this stage, and such a risk/opportunity matrix *may well need to be adapted* (possibly several times) after such a robust engagement process has begun.

In the tables below, “S0” (S Zero) refers to the current baseline situation, with no investment taking place. “S1” refers to a small Green Hydrogen Project, as well as the establishment of the Port. “S2” refers to a large Green Hydrogen Project, alongside the Port.

The areas are described in the most impacted area (Port Nolloth and Alexander Bay); then the Springbok area (which is further afield, but is the main economic centre in the region); the much larger SEZ area (stretching as far as Aggeneys); and finally, the rural villages around Port Nolloth, which will experience their own distinctive impacts.

In the Risk Analysis, the Risk is a composite of Extent of Impact (“Consequence”), and the Likelihood of Impact. If a potential Risk Impact is very low, with slight likelihood, then of course it will carry a Very Low Risk. In contrast, if a Risk Impact is very high, and it is almost certain to happen, then the Risk is High. The same logic applies to potential positive outcomes, called “Opportunities”.

These Risk outcomes are marked in different colours, ranging from light yellow (very low risk) to dark brown (very high risk). The potential Opportunities are colour-coded in green, ranging from light green (very small potential opportunity) to dark green (very likely and very impactful potential opportunity).

Note that these Risk/Opportunity are very high-level comparisons, without specific details provided. “Housing”, for example, could include a range of risks and opportunities. This table does not examine the various components of each Risk or Opportunity.

⁴⁶² For this reason, we refer to “risk management” instead of “risk mitigation”. Management refers to potential positive and negative outcomes, whereas “mitigation” refers to minimising *negative* outcomes.

Neg impact	Scenario	Spatial receiving environment	WITHOUT MANAGEMENT			WITH MANAGEMENT		
			Consequence	Likelihood	Risk	Consequence	Likelihood	Risk
Population shifts	S0: Baseline	Port Nolloth, Alexander Bay	Very low	Slight	Very low	Very low	Slight	Very low
	S1: Small GH2 (and Port)		High	Definite	High	High	Definite	High
	S2: Big H2 (and Port)		High	Definite	High	High	Definite	High
	S0: Baseline	Springbok area	Very low	Slight	Very low	Very low	Slight	Very low
	S1: Small GH2		Slight	Likely	Moderate	Slight	Likely	Moderate
	S2: Big H2		Moderate	Likely	Moderate	Moderate	Likely	Moderate
	S0: Baseline	SEZ area	Moderate	Likely	Moderate	Moderate	Likely	Moderate
	S1: Small GH2		Moderate	Likely	Moderate	Moderate	Likely	Moderate
	S2: Big H2		Moderate	Likely	Moderate	Moderate	Likely	Moderate
	S0: Baseline	Rural settlements	Very low	Slight	Very low	Very low	Slight	Very low
	S1: Small GH2		Very low	Slight	Very low	Very low	Slight	Very low
	S2: Big H2		Very low	Slight	Very low	Very low	Slight	Very low

Neg impact	Scenario	Spatial receiving environment	WITHOUT MANAGEMENT			WITH MANAGEMENT		
			Consequence	Likelihood	Risk	Consequence	Likelihood	Risk
Pressure on housing and municipal services	S0: Baseline	Port Nolloth, Alex Bay	Moderate	Unlikely	Low	Slight	Unlikely	Low
	S1: Small GH2 & Port		Significant	Definite	Moderate	Moderate	Likely	Moderate
	S2: Big H2 & Port		Drastic	Definite	Very high	Moderate	Likely	Moderate
	S0: Baseline	Springbok area	Slight	Very unlikely	Very low	Slight	Very unlikely	Very low
	S1: Small GH2		Slight	Very unlikely	Very low	Slight	Very unlikely	Very low
	S2: Big H2		Slight	Very unlikely	Very low	Slight	Very unlikely	Very low
	S0: Baseline	SEZ area (Pofadder)	Slight	Very unlikely	Very low	Slight	Very unlikely	Very low
	S1: Small GH2		Slight	Likely	Low	Slight	Very unlikely	Very low
	S2: Big H2		Slight	Likely	Low	Slight	Very unlikely	Very low
	S0: Baseline	Rural settlements	Slight	Unlikely	Low	Very low	Unlikely	Low
	S1: Small GH2		Slight	Unlikely	Low	Very low	Unlikely	Low
	S2: Big H2		Slight	Unlikely	Low	Very low	Unlikely	Low

Neg impact	Scenario	Spatial receiving environment	WITHOUT MANAGEMENT			WITH MANAGEMENT		
			Consequence	Likelihood	Risk	Consequence	Likelihood	Risk
Pressure on health services	S0: Baseline	Port Nolloth, Alex Bay	Moderate	Unlikely	Low	Slight	Very unlikely	Very low
	S1: Small GH2		Significant	Definite	Very high	Moderate	Likely	Moderate
	S2: Big H2		Drastic	Definite	Very high	Moderate	Likely	Moderate
	S0: Baseline	Springbok area	Low	Unlikely	Very Low	Slight	Very unlikely	Very low
	S1: Small GH2		Low	Unlikely	Very Low	Slight	Very unlikely	Very low
	S2: Big H2		Low	Unlikely	Very Low	Slight	Very unlikely	Very low
	S0: Baseline	SEZ area	Moderate	Unlikely	Low	Slight	Very unlikely	Very low
	S1: Small GH2		Significant	Likely	Moderate	Slight	Very unlikely	Very low
	S2: Big H2		Significant	Likely	Moderate	Slight	Very unlikely	Very low
	S0: Baseline	Rural settlements	Moderate	Unlikely	Low	Slight	Very unlikely	Very low
	S1: Small GH2		Moderate	Unlikely	Low	Slight	Very unlikely	Very low
	S2: Big H2		Moderate	Unlikely	Low	Slight	Very unlikely	Very low

Neg impact	Scenario	Spatial receiving environment	WITHOUT MANAGEMENT			WITH MANAGEMENT		
			Consequence	Likelihood	Risk	Consequence	Likelihood	Risk
Social ills due to boomtown conditions	S0: Baseline	Port Nolloth, Alex Bay	Moderate	Likely	Moderate	Moderate	Unlikely	Low
	S1: Small GH2		Moderate	More Likely	High	Moderate	Unlikely	Moderate
	S2: Big H2		Moderate	More likely	High	Moderate	Likely	Moderate
	S0: Baseline	Springbok area	Slight	Likely	Low	Slight	Unlikely	Very low
	S1: Small GH2		Slight	Likely	Low	Slight	Unlikely	Very low
	S2: Big H2		Slight	Likely	Low	Slight	Unlikely	Very low
	S0: Baseline	SEZ area	Moderate	Likely	Moderate	Slight	Unlikely	Very low
	S1: Small GH2		Moderate	Likely	Moderate	Slight	Unlikely	Very low
	S2: Big H2		Moderate	More likely	High	Moderate	Likely	Moderate
	S0: Baseline	Rural settlements	Slight	Likely	Low	Slight	Unlikely	Low
	S1: Small GH2		Slight	Likely	Low	Slight	Unlikely	Very low
	S2: Big H2		Slight	Likely	Low	Slight	Unlikely	Very low

Negative & positive impact	Scenario	Spatial receiving environment	WITHOUT MANAGEMENT			WITH MANAGEMENT		
			Consequence	Likelihood	Risk /Opportunity	Consequence	Likelihood	Risk
Tourism (includes ore rail transport as key management option)	S0: Baseline	Port Nolloth, Alex Bay	Significant opportunity	More likely	Opportunity: Moderate	Significant	More likely	Opportunity: High
	S1: Small GH2		Significant	Likely	Very high	Moderate	Likely	Moderate
	S2: Big H2		Drastic	Definite	Very high	Significant	More likely	High
	S0: Baseline	Springbok area	Significant opportunity	More likely	Opportunity: Moderate	Significant	More likely	Opportunity: High
	S1: Small GH2		Slight	Likely	Very high	Slight	Unlikely	Moderate
	S2: Big H2		Slight	Likely	Very high	Slight	Unlikely	Moderate
	S0: Baseline	SEZ area	Slight opportunity	Unlikely	Opportunity: Low	Slight	Likely	Opportunity: Low
	S1: Small GH2		Slight	Likely	Very high	Slight	Unlikely	Moderate
	S2: Big H2		Slight	Likely	Very high	Slight	Unlikely	Moderate
	S0: Baseline	Rural settlements	Moderate opportunity	Likely	Opportunity: Low			Opportunity: Moderate
	S1: Small GH2		Slight	Likely	Moderate	Slight	Unlikely	Moderate
	S2: Big H2		Slight	Likely	Moderate	Slight	Unlikely	Moderate

Negative & positive impact	Scenario	Spatial receiving environment	WITHOUT MANAGEMENT			WITH MANAGEMENT		
			Consequence	Likelihood	Risk/Opportunity	Consequence	Likelihood	Risk
Export Agriculture (includes railway as management option)	S0: Baseline	Port Nolloth, Alex Bay, Orange River	Significant	Likely	Opportunity: Moderate	Significant	More likely	Opportunity: High
	S1: Small GH2 (PORT)		Drastic	More likely	Risk: Very high	Slight	Unlikely	Very low
	S2: Big H2		Drastic	More likely	Risk: Very high	Slight	Unlikely	Very low

Neg impact	Scenario	Spatial receiving environment	WITHOUT MANAGEMENT			WITH MANAGEMENT		
			Consequence	Likelihood	Risk	Consequence	Likelihood	Risk
Municipal capacity - technical	S0: Baseline	Port Nolloth, Alex Bay	Moderate	Unlikely	Low	Slight	Very unlikely	Very low
	S1: Small GH2		Drastic	More likely	High	Moderate	Likely	Moderate
	S2: Big H2		Drastic	More likely	High	Moderate	Likely	Moderate
	S0: Baseline	Springbok area	Moderate	Unlikely	Low	Slight	Very unlikely	Very low
	S1: Small GH2		Moderate	Unlikely	Low	Slight	Very unlikely	Very low
	S2: Big H2		Moderate	Unlikely	Low	Slight	Very unlikely	Very low
	S0: Baseline	SEZ area	Moderate	Unlikely	Low	Slight	Very unlikely	Very low
	S1: Small GH2		Moderate	Unlikely	Low	Slight	Very unlikely	Very low
	S2: Big H2		Moderate	Unlikely	Low	Slight	Very unlikely	Very low
	S0: Baseline	Rural settlements	Moderate	Unlikely	Low	Slight	Very unlikely	Very low
	S1: Small GH2		Moderate	Unlikely	Low	Slight	Very unlikely	Very low
	S2: Big H2		Moderate	Unlikely	Low	Slight	Very unlikely	Very low

Neg impact	Scenario	Spatial receiving environment	WITHOUT MANAGEMENT			WITH MANAGEMENT		
			Consequence	Likelihood	Risk	Consequence	Likelihood	Risk
Municipal capacity - political engagement and facilitation	S0: Baseline	Port Nolloth, Alex Bay	Slight	Very unlikely	Very low	Slight	Very unlikely	Very low
	S1: Small GH2		Extreme	Very likely	Very high	Moderate	Likely	Moderate
	S2: Big H2		Extreme	Very likely	Very high	Moderate	Likely	Moderate
	S0: Baseline	Springbok area	Slight	Very unlikely	Very low	Slight	Very unlikely	Very low
	S1: Small GH2		Slight	Very unlikely	Very low	Slight	Very unlikely	Very low
	S2: Big H2		Slight	Very unlikely	Very low	Slight	Very unlikely	Very low
	S0: Baseline	SEZ area	Slight	Very unlikely	Very low	Slight	Very unlikely	Very low
	S1: Small GH2		Slight	Very unlikely	Very low	Slight	Very unlikely	Very low
	S2: Big H2		Slight	Very unlikely	Very low	Slight	Very unlikely	Very low
	S0: Baseline	Rural settlements	Slight	Very unlikely	Very low	Slight	Very unlikely	Very low
	S1: Small GH2	Extreme	Very likely	Very high	Moderate	Moderate	Likely	Moderate
	S2: Big H2	Extreme	Very likely	Very high	Moderate	Moderate	Likely	Moderate

Pos impact	Scenario	Spatial receiving environment	WITHOUT MANAGEMENT			WITH MANAGEMENT		
			Consequence	Likelihood	Risk	Consequence	Likelihood	Risk
Job creation	S0: Baseline	Port Nolloth, Alex Bay	Slight	Very unlikely	Very low	Slight	Very low	Very low
	S1: Small GH2		Moderate	Definite	Very high	Extreme	Definite	Very high
	S2: Big H2		Moderate	Definite	Very high	Extreme	Definite	Very high
	S0: Baseline	Springbok area	Slight	Very unlikely	Very low	Slight	Very unlikely	Very low
	S1: Small GH2		Moderate	More likely	High	Significant	More likely	High
	S2: Big H2		Significant	More likely	High	Significant	More likely	High
	S0: Baseline	SEZ area	Slight	Very low	Very low	Slight	Very unlikely	Very low
	S1: Small GH2		Moderate	More likely	High	Significant	More likely	High
	S2: Big H2		Significant	More likely	High	Significant	More likely	High
	S0: Baseline	Rural settlements	Slight	Very unlikely	Very low	Slight	Very unlikely	Very low
	S1: Small GH2		Moderate	More likely	High	Significant	More likely	High
	S2: Big H2		Significant	More likely	High	Significant	More likely	High

Neg impact	Scenario	Spatial receiving environment	WITHOUT MANAGEMENT			WITH MANAGEMENT		
			Consequence	Likelihood	Risk	Consequence	Likelihood	Risk
Skills development	S0: Baseline	Port Nolloth, Alex Bay	Slight	Unlikely	Very low	Slight	Unlikely	Very low
	S1: Small GH2		Moderate	Likely	Moderate	Drastic	More likely	High
	S2: Big H2		Moderate	Likely	Moderate	Drastic	More likely	High
	S0: Baseline	Springbok area	Moderate	Unlikely	Low	Moderate	Likely	Moderate
	S1: Small GH2		Moderate	Unlikely	Low	Moderate	Likely	Moderate
	S2: Big H2		Moderate	Unlikely	Low	Moderate	Likely	Moderate
	S0: Baseline	SEZ area	Moderate	Unlikely	Low	Moderate	Likely	Moderate
	S1: Small GH2		Moderate	Unlikely	Low	Moderate	Likely	Moderate
	S2: Big H2		Moderate	Unlikely	Low	Moderate	Likely	Moderate
	S0: Baseline	Rural settlements	Slight	Unlikely	Very low	Slight	Unlikely	Very low
	S1: Small GH2		Moderate	Likely	Moderate	Drastic	More likely	High
	S2: Big H2		Moderate	Likely	Moderate	Drastic	More likely	High

Pos impact	Scenario	Spatial receiving environment	WITHOUT MANAGEMENT			WITH MANAGEMENT		
			Consequence	Likelihood	Risk	Consequence	Likelihood	Risk
Regional broadband roll-out	S0: Baseline	Port Nolloth, Alex Bay	Slight	Unlikely	Very low	Slight	Unlikely	Very low
	S1: Small GH2		Extreme	More likely	High	Extreme	Definite	Very high
	S2: Big H2		Extreme	More likely	High	Extreme	Definite	Very high
	S0: Baseline	Springbok area	Slight	Unlikely	Very Low	Moderate	Unlikely	Low
	S1: Small GH2		Extreme	More likely	High	Extreme	Definite	Very high
	S2: Big H2		Extreme	More likely	High	Extreme	Definite	Very high
	S0: Baseline	SEZ area	Moderate	Unlikely	Low	Moderate	Unlikely	Low
	S1: Small GH2		Extreme	More likely	High	Extreme	Definite	Very high
	S2: Big H2		Slight	Unlikely	Very Low	Moderate	Unlikely	Low
	S0: Baseline	Rural settlements	Slight	Unlikely	Very Low	Slight	Unlikely	Very low
	S1: Small GH2		Moderate	Likely	Moderate	Significant	Likely	Moderate
	S2: Big H2		Moderate	Likely	Moderate	Significant	Likely	Moderate

7.9 REFERENCES

- Allsopp, N, Laurent, C, Debeaudoin, LMC, and Samuels, MI, Environmental perceptions and practices of livestock keepers on the Namaqualand Commons challenge conventional rangeland management, *Journal of Arid Environments*, vol. 70. doi:10.1016/j.jaridenv.2006.11.005
- Andrews, M., Pritchett, L. & Woolcock, M. J. V. 2017. *Building State Capability: Evidence, Analysis, Action*. Oxford: Oxford University Press
- Anseeuw, W and Laurent, C, 2007. Occupational paths towards commercial agriculture: The key roles of farm pluriactivity and the commons, *Journal of Arid Environments*, vol. 70, doi:10.1016/j.jaridenv.2006.11.009
- Ansell, C., & Gash, A. (2008). Collaborative Governance in theory and Practice. *Journal of Public Administration Research and Theory*, 18, 543-571. <https://doi.org/10.1093/jopart/mum032>
- Atkinson, D, 2016. Is South Africa's Great Karoo region becoming a tourism destination? *Journal of Arid Environments* 127. <http://dx.doi.org/10.1016/j.jaridenv.2015.12.006>
- Atkinson, D. 2016. Thinking regionally: Aviation and development implications in the Karoo region, South Africa, *Development Southern Africa*, DOI: 10.1080/0376835X.2015.1120647.
- Atkinson, D, 2021, Preparing for the worst: South African municipalities' readiness to manage disasters related to potential shale gas mining, *International Journal of Disaster Risk Reduction*, vol. 65. <https://doi.org/10.1016/j.ijdr.2021.102537>
- Atkinson, D and Ingle, MK (2018), By their own bootstraps: municipal commonage farmers as an emerging agrarian class in the Karoo, *African Journal of Range & Forage Science*, 35:3-4, <https://doi.org/10.2989/10220119.2018.1514653>
- Atkinson, D., Schenk, et al,m(eds.). 2016. Shale Gas Development in the Central Karoo: A Scientific Assessment of the Opportunities and Risks. CSIR/IU/021MH/EXP/2016/003/A, ISBN 978-0-7988-5631-7, Pretoria: CSIR. Available at <http://seasgd.csiir.co.za/scientific-assessment-chapters/>
- Auditor-General of South Africa, 2022. *Consolidated report on local government audit outcomes*, Available at: <https://mfma-2022.agsareports.co.za/pages/current-status-of-mis>
- Bahta, Y. T., & Myeki, V. A. (2022). The Impact of Agricultural Drought on Smallholder Livestock Farmers: Empirical Evidence Insights from Northern Cape, South Africa. *Agriculture*, 12(4), 442. <https://doi.org/10.3390/agriculture12040442>
- Bakker, A. 2024. Flowers in the Desert: The Biggest Rescue Operation in Years in South Africa. *Future for Nature*. <https://futureornature.org/flowers-in-the-desert-the-biggest-rescue-operation-in-years-in-south-africa/>.
- Barry, M, 2004, Now Another Thing Must Happen: Richtersveld and the Dilemmas of Land Reform in Post-apartheid South Africa, *South African Journal for Human Rights*, vol. 20.
- Benacchio, M and Musso, E, 2001, Ports and Economic impact: Main changes, assessment approaches and distribution disequilibrium, *Transporti Europei*. <http://hdl.handle.net/10077/6863>
- Berzborn, S and Schnegg, M, 2007, Vulnerability, social networks, and resilience: Rural livelihoods in the Richtersveld, South Africa, in Lohnert, Bi, *Social Networks: Potential and Constraints. Indications from South Africa*, Germany. https://www.researchgate.net/publication/309616695_Vulnerability_Social_Networks_and_Resilience_Rural_Livelihoods_in_the_Richtersveld_South_Africa
- Berzborn, S, 2007, The household economy of pastoralists and wage-labourers in the Richtersveld, South Africa, *Journal of Arid Environments*, vol. 70, doi:10.1016/j.jaridenv.2006.09.011.
- Boonzaier, 1987, From communal grazing to 'economic' units: Changing access to land in a Namaqualand reserve, *Development Southern Africa*, 4:3, 479-491, DOI: 10.1080/03768358708439336

- Boonzaier E.A. (1991) People, parks and politics. In *Restoring the Land: Environment and Change in Post-apartheid South Africa* (M. Ramphele, ed.). London: Panos.
- Boonzaier, E, 1996, Negotiating the development of tourism in the Richtersveld, South Africa., in Price, MF and Smith, VL, People and tourism in fragile environments. Wiley.
- Boonzaier, E (1987), From communal grazing to 'economic' units: Changing access to land in a Namaqualand reserve, Published in: Development Southern Africa, August 1987
- Borchardt, S. 2024. Shedding light on energy poverty: Household energy challenges in De Aar, a renewable energy hub in the Northern Cape Karoo, *Contested Karoo: Interdisciplinary perspectives on change and continuity in South Africa's drylands*, Cape Town: UCT Press. <https://doi.org/10.52779/9781991450012>
- Borchardt, S.P., 2023. Illuminating Energy Poverty: A case study of the energy needs and challenges of low-income households in De Aar, a renewable energy hub in South Africa's Northern Cape Province. PhD Dissertation, Stellenbosch University: Stellenbosch.
- Boutilier, R.G. and Black, L. 2013. Legitimizing industry and multi-sectoral regulation of cumulative impacts: A comparison of mining and energy development in Athabasca, Canada and the Hunter Valley, Australia, *Resources Policy*, 38, 696–703
- Box, H. 2023. Namakwa District Municipality and UWC sign Green Hydrogen MOU., <https://www.uwc.ac.za/news-and-announcements/news/namakwa-district-municipality-and-uwc-sign-green-hydrogen-mou>
- Bregman, J, 2010, *Land and Society in the Komaggas region of Namaqualand*, MA Thesis, University of Cape Town. <https://open.uct.ac.za/server/api/core/bitstreams/76d187f3-d068-4890-b957-1573cfdad794/content>
- Brown, RB, Dorins, SF, and Krannich, RS, (2009), The Boom-Bust-Recovery Cycle: Dynamics of Change in Community Satisfaction and Social Integration in Delta, Utah, *Rural Sociology*, <https://doi.org/10.1526/0036011053294673>
- Button, K, Doh, S & Yuan, J, 2010. The Role of Small Airports in Economic Development. *Airport Management* 4(2).
- BVi Consulting Engineers. 2024. *Feasibility Study on Port Nolloth's Bulk Water Supply, August 2024. Project Reference No.: 34141, BVI Consulting Engineers, Springbok*
- Canter, LW and Ross, B, (2010) State of practice of cumulative effects assessment and management: The good, the bad and the ugly, *Impact Assessment and Project Appraisal*, DOI: 10.3152/146155110X12838715793200.
- Carrick, PJ and Kruger, R, 2007. Restoring degraded landscapes in lowland Namaqualand: Lessons from the mining experience and from regional ecological dynamics, *Journal of Arid Environments*, vol. 70, doi:10.1016/j.jaridenv.2006.08.006
- Chapman, R., Tonts, M. and Plummer, P. 2014. Resource development, local adjustment, and regional policy: Resolving the problem of rapid growth in the Pilbara, Western Australia. *Journal of Rural and Community Development*, 9(1).
- Checkoway, B., Allison, T., & Montoya, C., 2005. Youth participation in public policy at the municipal level. *Children and Youth Services Review*, 27(10):1149-1162.
- Christopherson, S. and Rightor, N. 2011. How shale gas extraction affects drilling localities: Lessons for regional and city policy makers, *Journal of Town & City Management*, 2(4), 350–368.
- Cocks, M, Vetter, S and Wiersum, KF, (2018) From universal to local: Perspectives on cultural landscape heritage in South Africa, *International Journal of Heritage Studies*, 24:1, 35-52, DOI: 10.1080/13527258.2017.1362573
- Cornell, D.H.; Thomas, Robert James; Gibson, R.; Moen, H.F.G.; Reid, D.L.; Moore, J.M.; Gibson, R.L.. 2006 The Namaqua-Natal Province. In: Johnson, M.R.; Anhaeuser, C.R.; Thomas, Robert James, (eds.) *The geology of South Africa*. Johannesburg, South Africa, Geological Society of South Africa, 325-379, 55pp.
- Cornell, FC, 1920. The glamour of prospecting : wanderings of a South African prospector in search of copper, gold, emeralds, and diamonds, T Fisher and Unwin, London, 1920.

- CSIR, 2023. Namakwa District Municipality: *Risk Profile Report based on the Green Book*. Stellenbosch.
- Cousins, Ben and Ruth Hall. 2011. Rights without illusions: The potential and limits of rights-based approaches to securing land tenure in South Africa. Working Paper 18. PLAAS, UWC: Bellville.
- Cousins, B., Hoffman, M.T., Allsopp, N. and Rohde, R.F., 2007. A synthesis of sociological and biological perspectives on sustainable land use in Namaqualand. *Journal of Arid Environments*, 70(4):834-846. <https://doi.org/10.1016/j.jaridenv.2007.04.002>.
- Creamer, T. 20203. Municipalities approved so far for Eskom debt relief owe a combined R26.69bn, <https://www.engineeringnews.co.za/article/municipalities-approved-so-far-for-eskom-debt-relief-owe-a-combined-r2669bn-2023-10-13>
- Department of Agriculture, Forestry and Fisheries, 2017, National land capability evaluation raster data layer, 2017.
- Department of Agriculture, Land Reform and Rural Development (DLRRD), 2021, *Karoo Regional Spatial Development Framework*. <https://www.karoorsdf.co.za/>
- Department of Agriculture, Land Reform and Rural Development, *Review and Development of the Municipal Spatial Development Framework for Namakwa District Municipality*, 2023. Compiled Tshani Consulting. https://www.namakwa-dm.gov.za/wp-content/uploads/2023/02/Phase-4_Draft-Spatial-Proposals_Namakwa.pdf
- Department of Agriculture, Land Reform and Rural Development, 2023. *Namakwa Spatial Framework*. <https://www.namakwa-dm.gov.za/publications/>
- Department of Agriculture, 2021, Land Reform and Rural Development (DALRRD), Karoo Regional Spatial Development Framework.
- Department of Agriculture, Land Reform and Rural Development (2022), *National Spatial Development Framework*. https://www.gov.za/sites/default/files/gcis_document/202302/47999gen1594.pdf
- Department of Government Communications. 2012. Department emphasises its commitment to Richtersveld Communal Property. [online] Available at: <https://www.gov.za/news/media-statements/department-emphasises-its-commitment-richtersveld-communal-property>
- Department of Cooperative Governance and Traditional Affairs (COGTA), 2020, Implementation of the District Development Model. A report on lessons learnt from the piloting phase. https://pmg.org.za/files/210401DDM_Lessons_learnt_report_003.docx.
- Department of Co-operative Governance and Traditional Affairs (COGTA) (2022) *Namakwa District Municipality District Development Model*. <https://www.cogta.gov.za/ddm/>
- Department of Co-operative Governance and Traditional Affairs (COGTA), n.d. *Namakwa District Profile*.
- Department of Co-operative Governance and Traditional Affairs (COGTA), 2020. Namakwa District: Profile and Analysis District Development Model, Republic of South Africa: Pretoria. at https://www.cogta.gov.za/cgta_2016/wp-content/uploads/2023/11/NAMAKWA-DISTRICT-PROFILE-24062020.pdf
- Department of Science and Innovation (DSI), *Hydrogen Society Roadmap for South Africa 2021*.
- Department of Trade and Industry, *Green Hydrogen Commercialisation Strategy for South Africa*, 2023, <https://www.thedtic.gov.za/green-hydrogen-commercialisation-strategy/>
- Donehue, P & Baker, D, 2012. Remote, rural, and regional airports in Australia. *Transport Policy* 24, 232–9. doi:10.1016/j.tranpol.2012.08.007
- Dunne, JM, 1986, *Towards a Regional Development Strategy for Namaqualand*, Master of Arts thesis, University of Cape Town.
- England, J.L. and Albrecht, S.L. 1984. Boomtowns and social disruption, *Rural Sociology*, 49(3), 230-246

- Ennis, G., Tofa, M. and Finlayson, M. 2014. Open for Business but at What Cost? Housing issues in 'boomtown' Darwin, *Australian Geographer*, 45(4), 447-464, DOI: 10.1080/00049182.2014.953732
- EverinGH2am, M and Jannecke, C, 20026, Land Restitution and Democratic Citizenship in South Africa, *Journal of Southern African Studies*, Volume 32, Number 3. DOI: 10.1080/03057070600830508
- Filteau, M.R. 2015. Go back to Texas, Gas Bastards! How a newcomer population of itinerant energy workers manage dirty work stigma in the Marcellus Shale Region, *Society and Natural Resources: An International Journal*, 4 June 2015, published online. DOI: <http://dx.doi.org/10.1080/08941920.2015.1024367>.
- Fleminger D., 2008, Richtersveld Cultural and Botanical Landscape - Including Namaqualand. 30° South Publishers.
- Fourie, K and Oppel, W, *Socio-Economic Baseline Assessment*, Conservation South Africa, 2024.
- Francis, M.L., Fey, M.V., Prinsloo, H.P., Ellis, F., Mills, A.J., and Medinski, T.V. 2007. Soils of Namaqualand: Compensations for aridity, *Journal of Arid Environments* 70: 588–603.
- Franks, D.M., Brereton, D. and Moran, C.J. 2013. The cumulative dimensions of impact in resource regions, *Resources Policy*, 38, 640–647.
- Glavovic BC 1996, Resolving People-Park Conflicts through Negotiation: Reflections on the Richtersveld Experience, *Journal of Environmental Planning and Management*, Vol 39, no. 4.
- Groenewald, Y. 2019. Richtersveld diamond deal leaves locals with the dirt, *Oxpeckers: Investigative Environmental Journalism*. [Online] Available: <https://oxpeckers.org/2019/03/richtersveld-diamond-deal/>
- Hall, R. (2009). "Another Countryside? Policy Options for Land and Agrarian Reform in South Africa." Institute for Poverty, Land and Agrarian Studies (PLAAS).
- Hamedani, EA, Alenabi, SA, Talebi, S. Hydrogen as an energy source: A review of production technologies and challenges of fuel cell vehicles. *Energy Reports*, Volume 12, 2024, 3778-3794
- Hamukoshil SS, Mamal N, Shimandall PP, Shafudahl III NH. An overview of the socio-economic impacts of the green hydrogen value chain in Southern Africa. *Journal of Energy In South Africa*. vol.33 n.3. 2022: 12-21.
- Haslam-McKenzie, F. 2013. Delivering Enduring Benefits from a Gas Development: governance and planning challenges in remote Western Australia, *Australian Geographer*, 44(3), 341-358, <http://dx.doi.org/10.1080/00049182.2013.817032>
- Hendricks, HH, Clark, B and Bond, WJ, 2005, Movement response patterns of livestock to rainfall variability in the Richtersveld National Park. *African Journal of Range & Forage Science*, July.
- Hendricks, HH, [Midgley, JJ](#); [Bond, WJ](#); 2004, Why communal pastoralists do what they do in the Richtersveld National Park, *African Journal of Range & Forage Science*, July 2004
- Hendricks, HH, Bond, WJ, Midgley, JJ and Novellie, PA, 2007, Biodiversity conservation and pastoralism—reducing herd size in a communal livestock production system in Richtersveld National Park, *Journal of Arid Environments*, vol. 70. doi:10.1016/j.jaridenv.2006.12.023
- Hendriks, U. 2022. Some Northern Cape coastal communities oppose multi-billion-rand development projects, SABC News. Available: [Some Northern Cape coastal communities oppose multi-billion rand development projects - SABC News - Breaking news, special reports, world, business, sport coverage of all South African current events. Africa's news leader.](#)
- Hoffman, M.T. and Rohde, R.F. 2007. 'From pastoralism to tourism: The historical impact of changing land use practices in Namaqualand', *Journal of Arid Environments*, 70(4): 641–658. Available at: <https://doi.org/10.1016/j.jaridenv.2006.05.014>.
- Human, L. 2024. Diamond mines everywhere but Richtersveld town battles poverty: Sanddrift residents struggle to get medication, ambulances, and jobs, GroundUp. [Online] Available: [Diamond mines everywhere but Richtersveld town battles poverty | GroundUp](#)

- Human, L. 2023. Richtersveld community split over hydrogen project. GroundUp [online] Available at: <https://groundup.org.za/article/richtersveld-community-split-over-hydrogen-project/>
- Human, L. 2024. Namaqualand communities call for moratorium on all new mining rights, GroundUp, Available: <https://groundup.org.za/article/namaqualand-communities-call-for-moratorium-on-all-new-mining-rights/>
- Human, L. 2024. Green hydrogen mega-project stokes community fears of dire economic and environmental losses. Daily Maverick, 7 March. Available at: <https://www.dailymaverick.co.za/article/2024-03-07-green-hydrogen-mega-project-stokes-community-fears-of-dire-economic-and-environmental-losses>
- Hussein, HI, Heffron, RJ, Phillips, A, Jarin, J-B, and Basil, CV, Future-proofing for green hydrogen in the Global South: A procedural justice perspective, *Journal of Energy and Natural Resources Law*, Vol. 42, no. 3, 2024. DOI: <https://doi.org/10.1080/1031461X.2024.2345007>.
- Human, L. 2024. Stop new mining on West Coast, say fishers, GroundUp. <https://groundup.org.za/article/stop-new-mining-on-west-coast-say-fishers/>
- Independent Electoral Commission, 2021. *Municipal Elections 2021 Report*, https://static.pmg.org.za/220520_Municipal_Elections_Report_Compressed_1.pdf
- Institute for Responsible Mining Assurance (IRMA), *Free, Prior and Informed Consent (FPIC)*, https://responsiblemining.net/wp-content/uploads/2018/08/Chapter_2.2_FPIC.pdf
- Jacobs, J, 1970, *The Economy of Cities*, Vintage Books, New York.
- Jacobs, Peter, Edward Lahiff and Ruth Hall. 2003. Land redistribution, Evaluating Land and Agrarian Reform in South Africa (ELARSA Occasional Paper 1. Cape Town: Programme for Land and Agrarian Studies.
- Jacquet, J.B. 2009. Energy Boomtowns & Natural Gas: Implications for Marcellus Shale Local Governments & Rural Communities, The Northeast Regional Center for Rural Development (NERCRD), Jacquet, J.B. and Kay, D.L. 2014. The Unconventional Boomtown: Updating the Impact Model to Fit New Spatial and Temporal Scales, *Journal of Rural and Community Development*, 9(1), 1-23.
- Jurgens, N, 2001, Remarkable Differences in Desertification Processes in the Northern and Southern Richtersveld (Northern Namaqualand, Republic of South Africa), in Breckle, SW, Veste, M, Wucherer, W (eds) *Sustainable Land Use in Deserts*, Springer, Heidelberg. https://doi.org/10.1007/978-3-642-59560-8_18.
- Juskus, R. 2023. Sacrifice Zones: A Genealogy and Analysis of an Environmental Justice Concept. *Environmental Humanities* ; 15 (1):3–24. doi: <https://doi.org/10.1215/22011919-10216129>
- Kamiesberg Local Municipality, 2023, *Annual Report*.
- Kamiesberg LM, 2024. 2023/24 Final Annual Budget and MTREF. www.kamiesberg.gov.za/wp-content/uploads/2024/06/NC064-FINAL-ANNUAL-BUDGET-23-24.pdf.
- Kelsey, T.W., Shields, M., Ladlee, J.R. and Ward, M. 2011. Economic Impacts of Marcellus Shale in Pennsylvania: Employment and Income in 2009, MSETC (Marcellus Shale Education and Training Centre)\, <http://www.shaletec.org/reports.htm>.
- Kelso, C.J. 2010. On The Edge of the Desert – A Namaqualand Story: 1800-1909. PhD Dissertation, University of the Witwatersrand, Johannesburg. Available: <https://wiredspace.wits.ac.za/items/Oe351abd-6cf5-40d8-ad5f-d8ed5fb052aa>
- Khai-Ma Local Municipality, 2023, *Integrated Development Plan*.
- Khai-Ma Local Municipality. 2023. Integrated Development Plan 2022/2023 – 2026/2027. www.khaima.gov.za/wp-content/uploads/2022/07/KHal-MA-IDP-Draft-2022-23-2026-27.pdf
- Klagge, B, Walker, B, Kalvelage, L and Greiner, C, (2015), Governance of future-making: Green hydrogen in Namibia and South Africa, *Geoforum* 161, <https://doi.org/10.1016/j.geoforum.2025.104244>.

- Kleinbooi, K and Lahiff, E, 2007, "Die man is die hoof en vat voor": Women's attitudes to land and farming in the communal areas of Namaqualand, *Journal of Arid Environments*, vol. 70. doi:10.1016/j.jaridenv.2006.08.009
- Kleperis, J. et al. Hydrogen supported bioconversion of biogas CO₂ to upgrade biomethane in fuel for vehicles: Recent findings in farmers survey, *Engineering for Rural Development*, 20, 2021: 1774–1780.
- Koteli, T. 2022. Theatrical demonstration against government in Northern Cape, OFM. [Online] Available: <https://www.ofm.co.za/article/centralsa/316346/theatrical-demonstration-against-government-in-northern-cape->
- Kotler, P., Bowen, J.T. & Baloglu, S. 2021. *Marketing for Hospitality and Tourism*. 8th edition. Pearson: New York.
- Lawrie, M., Tonts, M. and Plummer, P. 2013. Boomtowns, Resource Dependence and Socio-economic Well-being, *Australian Geographer*, 42(2), 139-164
- Lebert, T and Rohde, R, 2007. Land reform and the new elite: Exclusion of the poor from communal land in Namaqualand, South Africa. doi:10.1016/j.jaridenv.2006.03.023
- Lönngren, J. and van Poeck, K. 2020. Wicked problems: a mapping review of the literature, *International Journal of Sustainable Development & World Ecology*, 28(6): 481–502. doi: 10.1080/13504509.2020.1859415.
- Loxton, E.A., Schirmer, J. and Kanowski, P. 2013. Exploring the social dimensions and complexity of cumulative impacts: a case study of forest policy changes in Western Australia, *Impact Assessment and Project Appraisal*, 31(1).
- Malope, B. 2024. A just transition in the Karoo? Renewable energy and the limits of job creation and community development in Loeriesfontein, in *Contested Karoo: Interdisciplinary perspectives on change and continuity in South Africa's drylands*, Cape Town: UCT Press. <https://doi.org/10.52779/9781991450012>
- Mamabolo, M.A. 2016. Provision of Quality Road Infrastructure in South Africa: Rural Villagers' Perspectives in Polokwane Municipality, Limpopo Province, *Journal of Public Administration and Development Alternatives*, 1(2):28-44
- Marais, L, 2023. *The Social Impacts of Mine Closure in South Africa*. Routledge, Oxon. DOI: 10.4324/9781003262015.
- Marais, L, 2025, Planning for post-mining economies: Misconceptions and opportunities, *The Journal of the Southern African Institute of Mining and Metallurgy*, <https://doi.org/10.17159/2411-9717/MC22/2025>
- Masifundise Trust, 2024. Youth group tackle environmental challenges in fishing community, 28 February 2024, Available: <https://www.masifundise.org/youth-group-tackle-environmental-challenges-in-fishing-community/>
- May, H and Lahiff, E, 2007, Land reform in Namaqualand, 1994–2005: A review, in *Journal of Arid Environments*, vol. 70, doi:10.1016/j.jaridenv.2006.08.015.
- McGluwa, H. 2024. DA takes up mayoral position in Nama-Khoi coalition municipality, DA Northern Cape. [Online] Available: <https://nc.da.org.za/2024/07/da-takes-up-mayoral-position-in-nama-khoi-coalition-municipality>.
- McLachlan, J.N. 2019. History of the dispossession of the rights in land of pastoral indigenous communities in the cape colony from 1652 to 1910. *Fundamina*, 25(1):100-130. <https://dx.doi.org/10.17159/2411-7870/2019/v25n1a5>
- Michler, LM, Treydte, AC, Hayat, H and Lemke S, 2019, Marginalised herders: Social dynamics and natural resource use in the fragile environment of the Richtersveld National Park, South Africa, <https://doi.org/10.1016/j.envdev.2018.12.001>
- Mills, G, 1995, Dwellings and domestic groups: architectural design at the Richtersveld, In Smith, AB, 1995, *Einiqualand: studies of the Orange River frontier*, University of Cape Town Press.
- Misan, G.M. and Rudnik, E. 2015. The Pros and Cons of Long Distance Commuting: Comments from South Australian Mining and Resource Workers *Journal of Economic and Social Policy JESP Special Edition: Policy Responses to Megatrends in Regional Australia*, 17(1), article 6.

Mkhwanazi, S. 2021. The rise of civic movements as they challenge political parties. IOL News. Retrieved from <https://www.iol.co.za/news/politics/the-rise-of-civic-movements-as-they-challenge-political-parties-103e3501-4f9f-46a8-bdcb-c5eaab8171c7>

Mnwana, S. (2021) 'Land struggles, class formation and social change in post-apartheid South Africa', *Journal of Agrarian Change*, 21(4):627-643.

Motse, O. 2020. Richtersveld Municipality owes Eskom millions, OFM News. [Online] Available: <https://www.ofm.co.za/article/centralsa/297593/richtersveld-municipality-owes-eskom-millions>.

Mussnug, U, 1995, An ethno-archaeological study of pastoralism along the Orange River at the Richtersveld (Ursula Mussnug). In Smith, AB, 1995, *Einiqualand: studies of the Orange River frontier*, University of Cape Town Press.

Mutanga, S., Simelane, et al, 2023. *National Food and Nutrition Security Survey: Provincial Report: Northern Cape*. HSRC: Pretoria. <https://foodsecurity.ac.za/wp-content/uploads/2024/08/Northern-Cape-Report-Copy-compressed-compressed.pdf>

Nama Khoi Local Municipality:

- *Spatial Development Framework*, 2025.
- Nama Khoi Local Municipality, *Annual Report*, 2022.
- Nama-Khoi Municipality. 2024. Local Economic Development Strategy: 2024- 2029.

Namakwa District Municipality:

- 2023a. *Municipality Vulnerability Assessment and Climate Change Response Plan Local Government Climate Change Support Program*, Draft Version 5. February 2023, Northern Cape Province.
- 2023b. *Climate Change Adaptation Plan: Draft 1*, Northern Cape Province.
- 2023c, *Integrated Development Plan*, <https://www.namakwa-dm.gov.za/wp-content/uploads/2023/03/NDM-Council-Approved-Amended-IDP-2022-2027-27-Feb-2023.pdf>

National Treasury, *Municipal Socio-Economic Profiles (MSEP)*, Provincial and Municipal Reports. 2024. https://lg.treasury.gov.za/ibi_apps/portal/Municipal_Socio_Economic_Profiles

Negi, R. 2014. 'Solwezi Mabanga': Ambivalent Developments on Zambia's New Mining Frontier, *Journal of Southern African Studies*, 40(5), 999-1013.

Northern Cape Government:

- Northern Cape Economic Development Agency (NCEDA), 2023, *Northern Cape Green Hydrogen Masterplan: A Catalyst for Socio-economic Development*. Available at <https://www.ncGH2.co.za/>
- Northern Cape Provincial Government. 2019. Provincial Growth and Development Plan: Modern, Growing and Successful Province Vision 2040. Republic of South Africa
- Northern Cape Government, Office of the Premier, 2022, *Provincial Spatial Development Framework*, <http://www.northern-cape.gov.za/index.php/psdf/psdf-review>
- Northern Cape Office of the Premier (2023), presentation to National Council of Provinces (NCOP), , Three Sphere Planning Session, 20 March.
- Northern Cape Provincial Government, 2019, *Provincial Growth and Development Plan: Vision 2040*
- Northern Cape (2020), Office of the Premier, *Strategic Plan 2020-2025*.
- Northern Cape Provincial Government (2020), *Boegoebaai Port Business Case*, 2020.

Notteboom, TE and Rodrigue, 2005, JP, Port Regionalisation: Towards a new phase in port development, *Maritime Policy and Management*, Vol. 32, No. 3, pp. 297-313.

Nzo, T. (2021) *Whose Power Is It Anyway: Local government and renewable energy independent*

power producers' procurement programme (REIPPP). <https://pari.org.za/whose-power-is-itanyway-emthanjeni-local-municipality-and-renewable-energy/>

Nzo, T., Mahabir, J., 2023. Inclusive and decentralized renewable energy development.

PARI. https://pari.org.za/wp-content/uploads/2024/01/Green_Hydrogen-v3.pdf.

Parkin, M. 2024. Perspectives on Green Hydrogen Development in the Richtersveld Local Municipality. Honours research project. Stellenbosch University: Stellenbosch.

Paviour SJ., 2014, Carbon sequestration and trading potential in semi-arid South Africa: A Karoo case study. Master of Arts thesis, Stellenbosch University.

Pershee, J.P. 2011. North Dakota Expertise: A chance to lead in economically and environmentally sustainable hydraulic fracturing, *North Dakota Law Review*, 87, 485-507.

Phiri, M & Manchishi, S 2020. "Special economic zones in Southern Africa: white elephants or latent drivers of growth and employment?: The case of Zambia and South Africa," WIDER Working Paper Series wp-2020-160, World Institute for Development Economic Research (UNU-WIDER)

Pier and Hlabane. 2024. Reclaiming power: Shifting geographies of extractivism in South Africa and visions for a just transition from below. Transnational Institute. <https://www.tni.org/en/article/reclaiming-power#note-18502-37>

Pinto, J and Chege, K, Regulating Green and Low-carbon hydrogen in Africa: A case study of South Africa, *Advances in Science and Technology*, vol. 142, 2024. <https://doi.org/10.41028/p-Pv7uH9>.

Pretorius, A and Blaauw, D, 2024, Kleinzee: Looking for a new dawn amidst the remaining diamond dust; in S Matebesi, L Marais and V Nel, 2024, *Local Responses to Mining Closure in South Africa*. Routledge, Oxon. DOI: 10.324/9781003403326

Qumba, M.F. 2023. Evaluating South Africa's Special Economic Zones. University of Pretoria, <http://hdl.handle.net/2263/95397>

Raimi, D. 2012. The Potential Social Impacts of Shale Gas Development in North Carolina, Prepared for North Carolina Department of Environment and Natural Resources and North Carolina Environmental Review Commission.

Rawson, K. 2018. *Land rights & identity: the establishment of the Leliefontein Mission and its impact on the Little Namaqua of the Kamiesberg*. Master's Thesis. University of Cape Town: Cape Town. <http://hdl.handle.net/11427/28148>

Rawson, K. 2022. 'Casting off the old Kaross' : *The Little Namaqualand Missions, 1805-1848*. PhD thesis, University of Cape Town.

Republic of South Africa. 2014. Government Gazette 37664: Special Economic Zones Act 16 of 2014. https://www.gov.za/sites/default/files/gcis_document/201409/37664act16of2014specialeconzones19may2014.pdf

Rhoda, F. 2023. Municipal debt puts residents at risk of Eskom wrath, DA Northern Cape. 9 October 2023. [Online] Available: <https://nc.da.org.za/2023/10/municipal-debRhodat-puts-residents-at-risk-of-eskom-wrath>

Richtersveld Local Municipality:

- *Spatial Development Framework*, 2024.
- Richtersveld Local Municipality, 2023, *Annual Report*.

- Richtersveld Park Management Plan 2018 – 2028. <https://www.sanparks.org/wp-content/uploads/2021/06/richtersveld-park-management-plan.pdf>
- Roos, T and Wright, J, *Powerfuels and Green Hydrogen* (public version), Project undertaken for the EU-South Africa Partners for Growth, 2021.
- Robins, S. 1997. 'Transgressing the borderlands of tradition and modernity: Identity, cultural hybridity and land struggles in Namaqualand (1980–94)', *Journal of Contemporary African Studies*, 15(1):23–43. doi: 10.1080/02589009708729601.
- Rybchak O. et al, 2024. A Fine Line Between Carbon Source and Sink: Potential CO² Sequestration through Sustainable Grazing Management in the Nama-Karoo. In: von Maltitz, G.P., et al.
- Ryser, L. and Halseth, G. 2011. Housing Costs in an Oil and Gas Boom Town: Issues for Low-Income Senior Women Living Alone, *Journal of Housing for the Elderly*, 25(3), 306-325, DOI: 10.1080/02763893.2011.595618
- Saayman, M. 2013. En route with tourism. 4th edition. Cape Town: Juta.
- Sagel, VN, Rouwenhorst, KHR, and Faria, JA, Leveraging green ammonia for resilient and cost-competitive islanded electricity generation from hybrid solar photovoltaic wind farms: A case study in South Africa, *Energy & Fuels*, vol. 37, 2023. DOI: <https://doi.org/10.1021/acs.energyfuels.3c01950>.
- SALGA. 2021. District Development Model: Lessons from Pilots of eThekweni Metropolitan Municipality, OR Tambo & Waterberg Districts Municipalities.
- Shandro, J.A., Veiga, M.M., Shoveller, J., Scoble, M. and Koehoorn, M. (2011), Perspectives on community health issues and the mining boom-bust cycle, *Resources Policy* 36(2), 178–186, doi:10.1016/j.resourpol.2011.01.004
- Samij, Andrews, Pritchett and Woolcock, 2018, Samji, S., Andrews, M., Pritchett, L. and Woolcock, M. (eds.). 2018. *PDIA Toolkit – A DIY Approach to Solving Complex Problems*. Harvard University: The Building State Capability (BSC) Program. Available at: <http://creativecommons.org/licenses/by-nc-nd/4.0/>.
- Sharp, JS (1984), "Rural Development Schemes and the Struggle against Impoverishment in the Namaqualand Reserves", Carnegie Conference, Cape Town.
https://www.opensaldru.uct.ac.za/bitstream/handle/11090/389/1984_sharp_ccp69.pdf?sequence=1
- Sharp, J and Boonzaier, E, 1994, Ethnic Identity as performance: lessons from Namaqualand, *Journal of Southern African Studies*, Vol. 20, no. 3.
- Simons, L and Allsop, N, 2007. Rehabilitation of Rangelands in Paulshoek, Namaqualand: Understanding vegetation change using biophysical manipulations, *Journal of Arid Environments*, vol. 70. doi:10.1016/j.jaridenv.2006.11.012
- Sinxo, Z., 2022. Boegoebaai harbour a bit fishy, fear small-scale fishers. Food For Mzansi. Available at: <https://www.foodformzansi.co.za/boegoebaai-harbour-a-bit-fishy-fear-small-scale-fishers/>
- Smalberger, J. M. 1969. Aspects of the history of copper mining in Namaqualand. Master's Thesis. University of Cape Town: Cape Town. Available: <http://hdl.handle.net/11427/17619>
- Soares, AF, Spers, RG, and Jhuniar, ROS, Projection of global copper demand in the context of energy transition, *Resources Policy*, vol. 103, April 2025. <https://doi.org/10.1016/j.resourpol.2025.105567>
- South African Institute of International Affairs (SAIIA), *The South African Green Hydrogen TVET Ecosystem Just Transition Strategic Framework*, 2022.
- South African Tourism. 2024. Provincial Tourism Arrivals Report. Online: <https://www.southafrica.net/gl/en/corporate/page/provincial-tourist-arrivals-report>
- StatsSA, 2017, Agricultural Census, Northern Cape.
<https://www.statssa.gov.za/publications/Report-11-02-04/Report-11-02-042017.pdf>

- Teti, M., Nzewi, O., & Lungisa, S. 2024. The district development model as a catalyst for improved integrated development planning. *Journal of Local Government Research and Innovation*, 5.
- Tetteh, EK, Sijadu, NG and Rathilal, S, An overview of non-carbonaceous and renewable-powered technologies for green hydrogen production in South Africa: Keywords occurrence analysis, *Energy Strategy Reviews*, vol. 54, 2024. DOI: <https://doi.org/10.1016/j.esr.2024.101486>.
- Thornton P., 2012, Recalibrating Food Production in the Developing World: Global Warming Will Change More Than Just the Climate. CCAFS Policy Brief no. 6. (CGIAR Research Program on Climate Change, Agriculture and Food Security).
- Tonts, M., Plummer, P. and Lawrie, M. 2012. Socio-economic wellbeing in Australian mining towns: A comparative analysis, *Journal of Rural Studies*, 28(3), 288-301, doi:10.1016/j.jrurstud.2011.10.006
- Transnet, 2024, *Boegoebaai Port Development Socio-economic Studies: Social Economic Benefit Report*, Compiled by Social Risk Research.
- Tunn, J., Kalt, T., Müller, F., Simon, J., Hennig, J., Ituen, I., & Glatzer, N., 2024. Green hydrogen transitions deepen socioecological risks and extractivist patterns: evidence from 28 prospective exporting countries in the Global South. *Energy Research & Social Science*, 117, p.103731. DOI: 10.1016/j.erss.2024.103731.
- Ulgen, O, 2002, Developing the doctrine of aboriginal title in South Africa: Source and Content, *Journal of African Law*, 2002, Vol 46, Issue 2. DOI 10.1017/S0221855302001864 .
- United Nations, Tourism, 2024. Glossary of terms. Available at: <https://www.unwto.org/glossary-tourism-terms>
- Vallejos-Romero, , Cordoves-Sanchez, M, et al, Green Hydrogen and Social Sciences: Issues, Problems and Future Challenges, *Sustainability*, vol. 15, 2023. DOI: <https://doi.org/10.3390/su15010303>.
- Van der Lith, D, 2025. Nama Khoi Municipality achieves R70 million Eskom debt write-off, <https://southernmail.co.za/news/2025-03-01-nama-khoi-municipality-achieves-r70-million-eskom-debt-write-off/>
- Van der Watt, P, 2024. Alexkor and the Richtersveld community: Unlikely partners to pool, share or profit from joint diamond mining, in S Matebesi, L Marais and V Nel, 2024, *Local Responses to Mining Closure in South Africa*. Routledge, Oxon. DOI: 10.324/9781003403326.
- Voets, J.J. ; Brandsen, T.; Verschuere, B.; Koliba, C., "Collaborative Governance", in in Peters, G.; Thynne, I. (ed.), 2021, Oxford Research Encyclopedia of Politics, <https://doi.org/10.1093/acrefore/9780190228637.013.1419>
- Vos HC, Kanguuehi, KI. Toesie, R. Eckardt, FD. Ravenscroft, G. Fietz S. Spatial variability of dust concentration and deposition around an industrial port in South Africa emphasises the complexity of sources and transport. *Air Quality, Atmosphere & Health* 17. 2024: 2445–2459.
- Walker, C. (2010) 'Land reform in Southern and Eastern Africa: Key issues for strengthening women's access to and rights in land', *United Nations Development Fund for Women (UNIFEM)*.
- Webley. L, 2007, Archaeological evidence for pastoralist land-use and settlement in Namaqualand over the last 2000 years, *Journal of Arid Environments*, no. 70/
- Wesso, R and Brandt, F. (2023). Beneficial Technologies (Bentec) Green Hydrogen Community Development Toolkit.
- Wisborg, P. 2003. TRANCRAA and communal land rights: Lessons from Namaqualand. Policy Brief 4, Bellville: Institute for Poverty, Land and Agrarian Studies, University of the Western Cape.

7.10 DIGITAL APPENDICES 7-A & 7-B

SEPARATE DIGITAL DOCUMENTS

Appendix 7-A: Socio-economic and institutional data

Appendix 7-B: Economic data