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RAPID EXTRACTIVE ASSESSMENT

A rapid assessment of the extent of extractive concessions over IUCN Protected Areas in Namibia

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INTRODUCTION

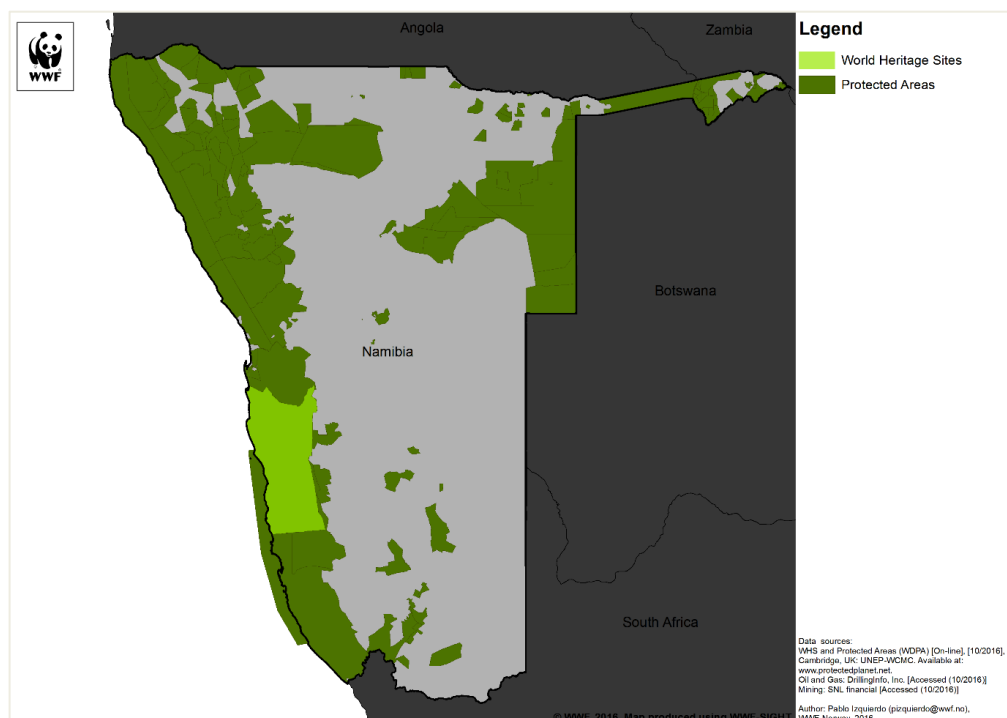
Namibia has a vast protected area network consisting of over 20 national parks and game, recreation and nature reserves. As a result, roughly 17% of Namibia is formally protected, with most the protected estate encompassing the coastal desert areas (Figure 1). Furthermore, there are 82 registered communal conservancies and 32 registered community forests in Namibia and one community association in a national park, covering 165,182 Sq. Km.

At the same, the Namibian economy is heavily dependent on its extractive sector, mainly on its mining sector and to a lesser extent, on its oil and gas sector. The mining industry contributed on average 11% per annum of national GDP from 1990 to 2011, and provides more than 50% of foreign exchange earnings, with the country's 165 active mining companies employing approximately 1.8% of the population.

This study attempts to illustrate the potential impact of the extractive sector over protected areas in Namibia by analysing the latest spatial datasets on extractive concessions (mining, oil and gas) over Namibia's extensive protected area network, which includes IUCN categorised protected areas I-IV, marine protected areas, World Heritage Sites and communal conservancies.

The goal of this study is to build knowledge and highlight the potential environmental issues related to the extractive sector in Namibia so that civil society organisations, government, private companies and investors can discuss and collaborate to find ways to mitigate these potential impacts and set this within a policy and practice context.

Figure 1. Map showing Namibia's protected area network as defined by UNEP-WCMC WDPA.



SECTOR OVERVIEW

Namibia produces significant quantities of Uranium and is now the world's fourth-largest supplier producing roughly 5% of global output. The expansion of the Husab mine in the Namib Desert is expected to triple the country's production in 2017. Namibia also produces large quantities of zinc and is a small producer of gold and other mineral resources including diamonds, copper, silver, lead, tin, tungsten, semi-precious stones and industrial minerals. It is now the fourth largest exporter of non-fuel minerals in Africa today.

Despite continued efforts Namibia oil and gas sector remains in its infancy. Efforts in the 1960s and 1970's lead to the discovery of Kudu gas fields, confirming the presence of hydrocarbons of the Namibian coast, however despite this, successive negative results meant interest waned. Recently interest has resurfaced with technological improvements in offshore drilling. Despite recent efforts, no projects to date have found commercial quantities, yet exploration continues with more majors acquiring concessions and with more drilling planned.

Mining Sector

Mineral exploration and mining operations in Namibia are regulated under the Minerals (Prospecting and Mining) Act 1992. The Ministry of Mines and Energy (MME) is responsible for the issuance of licenses for prospecting and mining. Mining and Exclusive Prospecting Licenses applications are submitted to the Mining Commissioner who refers such applications to the Minerals (Prospecting and Mining Rights) Committee (MPMRAC). The MME registers the application and sends it to the Ministry of Environment and Tourism (MET) to determine whether a full Environmental Impact Assessment (EIA) or a scoping report is required. In considering the applications, the MPMRAC assess the applicant's financial resources, technical expertise and proven track record of mineral exploration and development. The proposed prospecting programme, schedule and budget and its suitability to the geology, geomorphology and ecology of the area under application are critically reviewed. Documented proof of this must be furnished with the EIA or Scoping Report depending on the scale of the exploration or mining for consideration by the MPMRAC.

National environmental policies and regulations relevant to the extractive sector

The Namibian Constitution came into effect in 1990 and has been hailed to be one of the most democratic and liberal constitutions in the world. It shows a strong commitment to the rule of law, democratic government and respect for fundamental human rights and freedoms and contains mechanisms with regard to checks and balances between the three branches of Government: the executive, legislative branches, and the judiciary. The protection of the environment is not only a concern but a constitutional issue in Namibia. The Constitution lays the foundation for all policies and legislation in Namibia and contains three key environmental clauses relevant to the sustainable use of natural resources.

- Article 100 of the Constitution vests all natural resources in the State, unless otherwise legally owned. Thus, unless legal ownership to natural resources in a

specific locality is proven, such natural resources are owned by the State; the provision implies that natural resources can be legally owned as private property.

- Article 95 (l) stipulates that the state shall actively promote and maintain the welfare of the people by adopting policies which include the: “maintenance of ecosystems, essential ecological processes and biological diversity of Namibia and utilisation of living natural resources on a sustainable basis for the benefits of all Namibian”. With this particular Article, Namibia is obliged to protect its environment and to promote a sustainable use of its natural resources.
- Article 91(c) stipulates that one of the functions of the Ombudsman is “the duty to investigate complaints concerning the over utilisation of living natural resources, the irrational exploitation of non-renewable resources, the degradation and destruction of ecosystems and failure to protect the beauty and character of Namibia.”

The Minerals Policy of Namibia states that the Government will ensure that the development of the Namibian mining sector is environmentally acceptable and includes consideration of the health and safety of people. Therefore, The Mineral Policy makes a firm commitment that the government will ensure that exploration and mining within protected areas complies with the environmental and economic regulatory framework.

Mineral exploration and mining operations in Namibia are regulated under the Minerals (Prospecting and Mining) Act, 1992 through the granting of non-exclusive prospecting licenses, mining claims, exclusive reconnaissance licenses, exclusive prospecting licenses, mineral deposit retention licenses and mining licenses. The Minerals Act makes it a requirement for all exploration and mining activities to undergo Environmental Impact Assessment (EIA). Mining and exploration is also listed in the Environmental Management Act as one of the activities that require EIAs to be undertaken before the commencement of activities.

The Draft Protected Areas and Wildlife Management Bill, which will replace the Nature Conservation Ordinance, (Ord. 4 of 1975), will further empower the MET and enable them to deal with prospecting and mining in protected areas. Though the Ordinance does not specifically refer to mining as an activity within a protected area or recreational area, it does restrict access to PAs and prohibits certain acts therein as well as the purposes for which permission to enter game parks and nature reserves may be granted.

Namibia has drafted the National Policy on Prospecting and Mining in Protected Areas, which is currently undergoing review before approval. The policy is aimed at ensuring exploration and mining within protected areas is undertaken within the existing environmental and financial regulatory framework and mineral development only commences when there is deemed a negligible impact on biodiversity within the protected area. The National Policy seeks to establish no-go areas, where exploration and mining will not be permitted due to high conservation and/or aesthetic and tourism value based on the best available information. As part of this Policy a Decision Support Tool is being developed collaboratively between the Government of Namibia and WWF Namibia Office. The Tool will assist in identifying sensitive areas in among other factors irreplaceability, species richness as well as endemism.

Threat presented by the extractive sector to the environment

Extractive operations threaten the integrity of Namibia's delicate protected areas and the vital environmental services they provide to local communities. A fundamental challenge for Namibia is to progress a balanced, long-term development plan that harnesses the country's natural resources while maintaining the integrity of the biodiversity within its protected areas.

METHODOLOGY

The aim of this study is to define the spatial overlap of extractive concessions (mining and oil and gas) with key environmentally sensitive areas (protected areas) in Namibia, considering the entire extent of Namibia's 825,615 Sq. Km of terrestrial land mass and coastline.

Overlap between environmental and extractive spatial datasets was defined using a GIS analysis with a Sphere Mollweide coordinate system. A shapefile of Namibia's national borders and boundaries was obtained from Open Stream maps. Data defining the spatial location of mining concessions was sourced from the SNL Metals and Mining database (accessed 15th October 2016). Data defining the spatial location of oil and gas concessions was sourced from the DrillingInfo database (accessed 17th October 2016). The location and boundary of protected areas was defined using the IUCN and UNEP-WCMC World Database on Protected Areas (WDPA).

The spatial overlap between these datasets as recorded by the GIS analysis was exported to MS Excel. Data was filtered, where any extractive activity that could be interpreted as having a limited or negligible impact on a protected area was excluded by applying the following filters:

Mining Concessions:

- Exclusion of all mining concessions which expired before 01/09/2016. All mining concessions with no expiry date listed remain included.
- Removal of all mining concession which are under application, only 'granted' concessions included.
- Removal of all mining concession which have less than 1.0 Sq. Km overlap with a protected area.

Oil and Gas Concessions:

- Exclusion of all oil and gas concessions which expired before 01/09/2016. All oil and gas concessions with no expiry date listed remain included.
- Exclusion of all oil and gas concessions which are 'Not Operated', i.e. currently unowned.
- Removal of all oil and gas concessions not under 'contract'
- Removal of all oil and gas concessions with an overlap of less than 5.0 Sq. Km with a protected area.

Protected Areas:

- Removal of any Protected Areas with the status 'Proposed' or 'Not Reported', leaving only designated or inscribed Protected Areas.

Results were then combined to provide an overall summary of extractive activity within protected areas. Maps were generated using these filtered results.

Data Considerations

Protected areas frequently overlap, where different designations (i.e. a national park and a World Heritage Site) can cover the same spatial area. Subsequently, a single extractive concession can overlap multiple protected areas in the same spatial area,

generating multiple records effectively duplicating the spatial area overlapped. Whilst this is a true representation of the extent of the protected area network overlapped is it potentially misleading and does not provide a figure which is directly comparable with other spatial areas, i.e. the size of the country.

To resolve this issue, results reported consider 1) overlap with every protected area (which has the advantage of defining overlap against all protected areas designations and the disadvantage of potentially including duplication) and 2) overlap with dissolved protected areas (which has the advantage of excluding duplication to give a true area figure, but does so at the cost of excluding the specific details of the overlap).

RESULTS

This study considers the overlap of Namibia's protected area network with mining claims and oil and gas concessions. The results are reported below, considering mining and oil and gas concession overlap separately.

Mining Concessions

In total 87 out of 146 (~59%) of Namibia protected areas were overlapped by one or multiple mining concessions, where a total of 217 active mining claims created 368 overlap events. The total area mining claims overlap is 61,767.92 Sq. Km of which the majority, 49,587.85 Sq. Km (~80%), is issued under Exclusive Prospecting Licences (Figure 2).

Table 1. Table showing mining concessions overlap with protected areas listed by designation type, divided by mining concession type.

| Designation / IUCN Category / Name | Exclusive Prospecting Licence Area Overlap (Sq. Km) | Mining Licence Area Overlap (Sq. Km) | Total Area Overlap (Sq. Km) |
|------------------------------------|---|--------------------------------------|-----------------------------|
| International | 1,326.52 | 82.50 | 1,409.03 |
| World Heritage Site | 1,326.52 | | 1,326.52 |
| Ramsar Site | | 82.50 | 82.50 |
| National | 48,261.33 | 12,097.56 | 60,358.89 |
| IUCN category II | 6,237.54 | 274.28 | 6,511.82 |
| National Park | 6,237.54 | 274.28 | 6,511.82 |
| Not Reported | | | |
| Communal Conservancy | 29,747.17 | 1,134.94 | 30,882.11 |
| Community Forest | 5,840.91 | 30.70 | 5,871.61 |
| Concession | 916.17 | 15.66 | 931.83 |
| Forest Reserve | 76.79 | | 76.79 |
| National Park | 3,994.40 | 8,154.52 | 12,148.91 |
| Private Reserve | 108.75 | | 108.75 |
| IUCN category V | | | |
| National Park | 9.24 | | 9.24 |
| IUCN category VI | | | |
| Marine Protected Area | 1,330.36 | 2,487.47 | 3,817.83 |
| Grand Total | 49,587.85 | 12,180.07 | 61,767.92 |

Notable mining concession overlaps are as follows:

- Notable mining concession overlaps are as follows Four mining concessions significantly overlapping with Namibia's Namib Sand Sea World Heritage Site covering an area of 1,326.52 Sq. km.
- Eighteen mining concessions overlapping the Tsau/Khaeb (former Sperrgebiet) national park, covering a combined area of 10,576.34 Sq. Km.
- An overlap of 82.50 Sq. km was identified in the Ramsar site, Walvis Bay.

Considering 'Dissolved' Mining Concession Overlap

As noted in the methodology, protected areas can spatially overlap each other and as a result mining concessions can generate multiple spatial overlaps in the same area. Whilst it is necessary to report each overlap, it is also useful to consider the true spatial area overlapped of Namibia's protected area. To achieve this, it is necessary to

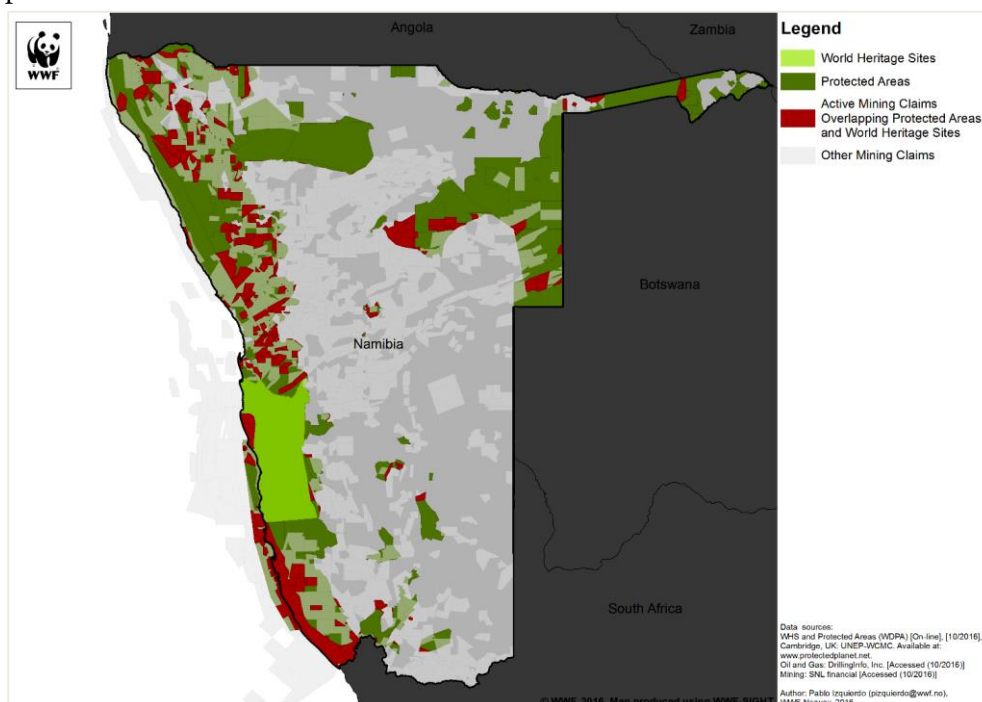
dissolve the protected areas together into one block and compared against the filtered active mining concessions, in doing so the details of the datasets are lost. Yet this provides a useful figure of the true overlap of Namibia’s protected area network. The results are reported below.

Table 2. Table showing the difference between all mining concession overlap identified within Namibia’s protected area network and overlap with dissolved protected areas.

| Variable Measured | No. / Area (Sq. Km) |
|--|---------------------|
| Number of adopted, inscribed or designated Protected Areas identified within Namibia | 146 |
| Total area in Sq. Km of the adopted, inscribed or designated Protected Areas before dissolve | 406,424.24 |
| Total area in Sq. Km of the adopted, inscribed or designated Protected Areas after dissolve | 322,425.37 |
| Number of granted mining claims identified within Namibia | 842 |
| Total area in Sq. Km of the granted mining claims before dissolve | 166,234.28 |
| Total area in Sq. Km of the granted mining claims after dissolve | 163,237.52 |
| Total overlapping area between non-dissolved Protected Areas and mining claims, in Sq. Km | 61,767.92 |
| Total overlapping area between the dissolved Protected Areas and mining claims, in Sq. Km | 54,212.29 |

Subsequently, 54,212.29 Sq. Km of Namibia’s 322,425.37 Sq. Km protected area network or 16.81% was identified as overlapped by mining concessions (Figure 2).

Figure 2. Map showing the active mining concessions overlap with Namibia’s protected areas.



Ownership of Mining Concessions which overlap with Protected Areas

The analysis revealed 154 unique holders of mining concessions which significantly overlap Namibia's protected areas. No attempt has been made to trace the ownership of holders identified. Subsequently, many holders identified may be subsidiaries of larger parent organisations and as such the ranking below does not provide a true indication of the most significant holders.

Table 3. Table showing significant holders responsible of active mining concessions overlapping Namibia's protected areas

| Holder Name | Area of overlap (Sq. Km) | No. of concessions |
|--|---------------------------------|---------------------------|
| Namdeb Holding (Pty) Ltd | 9,216.70 | 7 |
| Geomin Global Ventures Namibia (Pty) Ltd | 3,083.49 | 2 |
| Peinge Consulting CC | 2,626.45 | 2 |
| Oturenda Mining Investment CC | 2,106.99 | 3 |
| Dauremas Mineral Development (Pty) Ltd | 1,959.68 | 2 |
| Mannax Printing and Design CC | 1,790.57 | 2 |
| Namibia Uranium Mines CC | 1,754.22 | 2 |
| Talismanis Prospecting Company (Pty) Ltd | 1,503.68 | 3 |
| Scholtz, Riana Getruida | 1,460.29 | 3 |
| Reptile Uranium Namibia (Pty) Ltd | 1,247.48 | 2 |

Notable holders of mining concession are as follows:

- Namdeb Holding (Pty) Ltd have seven active mining claims overlapping 9,216.70 Sq. Km of Namibia's protected areas.
- Peinge Consulting CC have two active mining claims overlapping 1,317.01 Sq. km of Namibia's World Heritage Site, Namib Sand Sea.

Oil and Gas Concessions

In total 48 out of 146 (~33%) of Namibia protected areas were overlapped by one or multiple oil and gas concessions, where a total of 22 active oil and gas concessions created 62 overlap events. The total area oil and gas concessions overlapped is 33,185.93 Sq. Km of which the majority, 24,901.77 Sq. Km (~75%), is issued under Exploration Concessions (Table 1).

Table 4. Table showing oil and gas concessions overlap with protected areas listed by designation type, divided by oil and gas concession type.

| Designation / IUCN Category / Name | Expl/Prod Concession Area Overlap (Sq. Km) | Exploration Concession Area Overlap (Sq. Km) | Total Area Overlap (Sq. Km) |
|--|--|--|-----------------------------|
| International | | | |
| Not Reported | | | |
| Ramsar Site, Wetland of International Importance | | 24.66 | 24.66 |
| National | | | |
| II | | | |
| National Park | 22.41 | 7,278.3 | 7,300.71 |
| IV | | | |
| National Park | | 8.83 | 8.83 |
| Not Reported | | | |
| Communal Conservancy | 8,136.03 | 6,006.12 | 14,142.15 |
| Community Forest | 125.71 | 4,142.29 | 4,268.01 |
| Concession | | 1,958.32 | 1,958.32 |
| National Park | | 3,384.16 | 3,384.16 |
| V | | | |
| National Park | | 13.84 | 13.84 |
| VI | | | |
| Marine Protected Area | | 2,085.24 | 2,085.24 |
| Grand Total | 8,284.15 | 24,901.77 | 33,185.93 |

Notable oil and gas concession overlaps are as follows:

- A total of 18 oil and gas contracts were identified as overlapping Namibia's communal conservancies and community forests, comprising an area of 18,410.16 Sq. Km.
- Two concessions were identified in the Namibian Islands Marine Protected Area, with a total area of 2,085.24 Sq. Km.
- Fourteen oil and gas concessions were identified within Namibia's National Parks. The Skeleton Coast Park is most effected with four overlaps identified covering an area of 5,362.05 Sq. km.

Considering 'Dissolved' Oil and Gas Concession Overlap

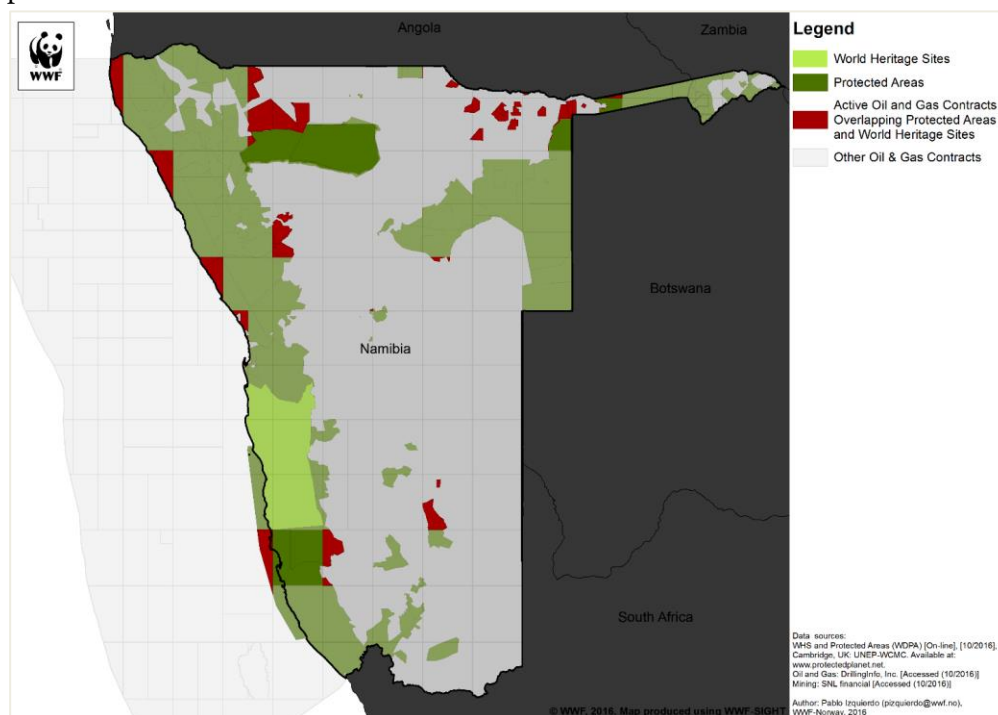
As noted, protected areas can spatial overlap each other and as a result oil and gas concessions can generate multiple spatial overlaps within the same area. Whilst it is necessary to report each overlap, as each is relevant it is also useful to consider the true spatial area overlapped of Namibia's protected area. To achieve this, it is necessary to dissolve the protected areas together into one block and compare against the filtered active oil and gas concessions, in doing so the details of the datasets are lost. Yet this provides a useful figure of the true overlap of Namibia's protected area network. The results are reported below.

Table 5. Table showing the difference between all oil and gas concession overlap identified within Namibia’s protected area network and overlap with dissolved protected areas.

| Variable Measured | No. / Area (Sq. Km) |
|---|---------------------|
| Number of adopted, inscribed or designated Protected Areas | 146 |
| Total area in Sq. Km of the adopted, inscribed or designated Protected Areas before dissolve | 406,424.24 |
| Total area in Sq. Km of the adopted, inscribed or designated Protected Areas after dissolve | 322,425.37 |
| Number of contract/active Oil and Gas concessions | 70 |
| Total area in Sq. Km of the contract/active Oil and Gas concessions before dissolve | 476,110.04 |
| Total area in Sq. Km of the contract/active Oil and Gas concessions after dissolve | 476,107.48 |
| Total overlapping area between the dissolved Protected Areas and Oil and Gas concessions, in Sq. Km | 29,676.57 |

Subsequently, 29,676.57 Sq. Km of Namibia’s 322,425.37 Sq. Km protected area network or 9.2% was identified as overlapped by oil and gas concessions (Figure 3).

Figure 3. Map showing the active oil and gas concessions overlap with Namibia’s protected areas.



Ownership of Oil and Gas Concessions which overlap with Protected Areas

The analysis revealed 13 unique holders of oil and gas concessions which significantly overlap Namibia’s protected areas. No attempt has been made to trace the ownership of holders identified, subsequently many holders identified may be subsidiaries of larger parent organisations and as such the ranking provided below may not be a true indication of the most significant holders.

Table 6. Table showing significant holders responsible of active oil and gas concessions overlapping Namibia's protected areas

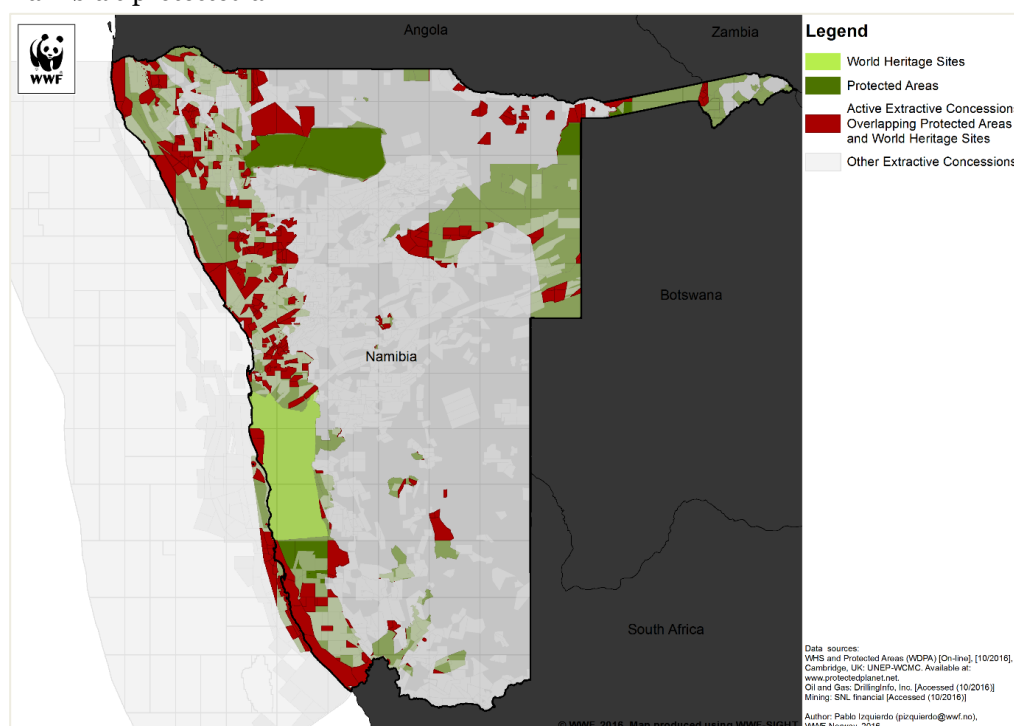
| Holder Name | Area of overlap (Sq. Km) | No. of concessions |
|--|--------------------------|--------------------|
| Hydrocarb Namibia Energy Corp | 8,284.15 | 3 |
| TriStone Africa Namibia (Pty) Ltd | 6,595.99 | 3 |
| Reconnaissance Energy Namibia | 5,230.35 | 5 |
| Global Oil & Gas Explorers | 3,060.82 | 1 |
| Unimag Trading SA | 2,191.48 | 1 |
| Shaanxi Yuyang Petroleum Technology Engineering Co Ltd | 2,159.76 | 1 |
| Nabirm Energy Services (Pty) Ltd | 2,136.12 | 1 |
| SOAR Energy Namibia (Pty) Ltd | 1,601.18 | 1 |
| Rhino Oil & Gas | 741.17 | 1 |
| ACREP Exploracao Petrolifera SA | 529.65 | 2 |

Notable holders of oil and gas concession are as follows:

- Out of the 13 oil and gas companies operating in these areas, 8 were found to own concessions overlapping protected areas more than 1,000 Sq. km.
- Tristone Africa Namibia (Pty) Ltd the sole company to own exclusive rights (100%) to its contracts, owns 3 contracts overlapping a total of 6,595.99 Sq. km of protected areas.
- Ten companies were identified to hold assets overlap Namibia's National Parks, overlapping 10,707.54 Sq. km.

Extractive Overlap

The cumulative overlap of mining claims and oil and gas contracts with Namibia's protected areas is displayed in figure 4 below.

Figure 4. Combined overlap of mining claims and oil and gas contracts with Namibia's protected ar

CONCLUSION

The global community is currently faced with the seemingly paradoxical obstacle of improving living standards for a world population estimated to increase by 40% in the next thirty years whilst simultaneously preventing the collapse of the Earth's life-sustaining biological systems. The raw materials required for primary mineral production come from biological resources, fossil fuels and non-fossil minerals and unless there is global reform of resource consumption patterns or technological developments extractive industries will remain a cornerstone of many global, national and local economies for the immediate and long-term future. The challenge for extractive industries is balancing the increased demand for raw materials with the protection of biodiversity and other natural and cultural values.¹

Namibia's protected area network helps to preserve the country's rich biodiversity, which arguably serves as the foundation of Namibia's tourism industry and sustainably supports the country's economic development. Namibia's protected area network supports a high level of endemism for plants, invertebrates, amphibians, reptiles, mammals and birds and, as is the case in many desert regions, survival is predicated on stable environmental conditions, with even marginal alterations to habitats or damage to vegetation likely to have severe ramifications for species survival.² The negative environmental impacts resulting from mining activities and oil and gas exploration and extraction such as, landscape degradation, disruption of hydrological and nutrient cycles, pollution, displacement disturbance and loss of wildlife habitat risk undermining these benefits, potentially generating wider economic and social consequences.

This study has demonstrated, through the extensive overlap identified between extractive activity and protected areas, that the existing legislation implemented by the Namibian government to regulate prospecting and mining activity in Namibia is not providing the protection the environment needs. Where over half of its protected areas are overlapped to some extent by a mining concession, in total 16.81% of Namibia's protected area network is overlapped by mining concessions. This overlap appears to impact all designations including flagship international sites where the World Heritage Site Namib Sand Sea, which includes a large number of endemic plant and animal species of global importance³, is overlapped by four mining concessions covering 1,326.52 Sq. km. Despite oil and gas remaining in infancy, exploration still is licensed across 9.2% of Namibia's protected areas.

There is subsequently, an urgent need for more stringent environmental regulations and improved enforcement of existing laws.

¹ Phillips, 2001

² Fuller and Prommer, 2010

³ UNESCO, 2016

Key Recommendations:

- **No-go zones:** clear boundaries should be set marking zones within protected areas where all extractive activity is prohibited.
- **Land offsetting:** where the benefits of extractive activity within a protected area are deemed of significant economic benefit, and environmental impact is minimal, permission for extraction could be granted on the provision that previously unprotected land is designated as protected to offset the loss or degradation to protected land through extractive activity.
- **Improving knowledge base:** In order to inform improved decision-making, further research at a local scale is required to better understand the impact of extractive activities. Given the number of overlaps identified in our analysis, this study has identified an urgent need for further research into the environmental impacts of extractive activities within Namibia.

By utilising integrated development and environmental spatial datasets WWF-SIGHT provides a platform for that can facilitate with implementing such approaches. Given that over half of Namibia's protected areas are being overlapped by extractive activities to some extent, there is an urgent need to address this issue before Namibia's already vulnerable biodiversity is further threatened.

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