

**Tomorrow belongs to people who prepare for it today:
perspectives on African oiled wildlife preparedness
and response.**

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ABSTRACT

Africa is one of the most biodiverse regions in the world, representing one-third of the world's biodiversity. The African continent is also home to 5 of the top 30 oil-producing countries in the world. The ability to respond effectively to an oiled wildlife incident is dependent on countries' investing in oiled wildlife contingency preparedness, which includes quick and guaranteed access to resources such as specialised equipment, trained expertise, and appropriate facilities. Some African countries, notably in Southern Africa, have made significant strides in developing preparedness and building capacity to respond to oiled wildlife incidents; however, overall preparedness on the African continent remains low. Many African countries face severe socio-economic challenges that often divert resources away from biodiversity issues. As a result, they are often poorly prepared to respond to oil pollution incidents affecting wildlife. The fact that new oil exploration and production activities are sometimes planned in areas that are either new (inland) or difficult to access brings novel challenges to wildlife planning and preparedness. International networks of professional oiled wildlife responders have developed mechanisms to provide response services globally to oil industry and government stakeholders. Their mobilisation may also require a response in Africa, in a country where preparedness is not well developed, and Tier 1 and often Tier 2 resources are scarce or have not yet been identified. From the perspective of an

international Tier 3 response capability, it is important to be aware of these challenges and explore how they could be overcome in the interest of the reputation of a mobilising party. This paper describes the challenges of responding to wildlife incidents in African marine and inland environments, drawing on insights from past and current response operations and preparedness projects. We provide recommendations on the minimum requirements for a wildlife intervention to be considered successful, and which roles industry or local authorities can play to make it work.

INTRODUCTION

Africa represents 8.7% of global oil production and 7.5% of proven oil reserves (GI WACAF/ BP, 2018). Oil is produced and transported throughout Africa's coastal areas, which are rich in marine and coastal wildlife. Over half of Africa's oil production comes from West, Central and Southern Africa. Much of the focus of oil and gas activities has been around the Gulf of Guinea which experienced the biggest increase in oil exploration and production globally (GI WACAF). However, fossil fuel activities have also started up in West and Southern Africa.

Nigeria and Angola are the main oil producers in the region followed by Gabon and Congo. In recent years, significant discoveries of oil and gas have been made in Mauritania, Senegal, The Gambia, Guinea Bissau and the Guinea Conakry basin (collectively MSGBC Basin). Significant exploration activities are also under way in Namibia and South Africa with promising indications of oil and gas reserves (Paraskova, 2019). Oil and gas extraction in the region is seen as a major contribution to economic growth and development. Currently more than 50% of oil produced is exported (Augé, 2018; GI WACAF, n.d.). As new technologies for oil extraction emerge, previously inaccessible regions (e.g. deep basins, remote areas) are now being targeted and new oil types (e.g. shale gas) are being explored (Augé, 2018; GI WACAF, n.d.). Whilst this promotes economic interests, the risk of an oil spill incident also increases.

Africa has not gone untainted when it comes to oil spill incidents. Two of its spills, namely the 1983 *Castillo de Bellver* and the 1991 *ABT Summer* are both in the top 20 major oil spills in history. However, most oil spill incidents are at a much smaller scale (GI WACAF, n.d.) and data on smaller spills is scarce (GI WACAF, n.d.).

Data on the impact of oil spills on wildlife is lacking apart from Southern Africa where detailed records on the number of wildlife affected are available. Vanstreels et al. 2023 found that during 1948 – 2021, for 39 oil spills out of the 71 oil spills reported, 83,224 seabirds were affected. Seabirds are more vulnerable to oil spills due to the effect oil has on the feathers; their breeding colonies are often located in close proximity to humans, and they spend much of their time near the surface of the water (Vanstreels, et al., 2023). Vanstreels et al. 2023 note that the actual number impacted is likely to be higher as many oiled birds are never captured and die at sea.

Challenges of responding in an African environment

The scale and impact of a spill largely depends on the safeguards and response capabilities in place. Globally, significant progress has been made in oil spill prevention, preparedness, response, and restoration however many developing countries still lag – which also goes for dealing with oiled wildlife. Responses are often uncoordinated, complicated, and fraught with conflict. In many instances, infrastructure that is needed to support a response, such as facilities (running potable water, reliable electricity supply, oiled water disposal) and road infrastructure for rapid deployment of teams and equipment and for transporting animals, may not exist. Developing local capacity for dealing with oiled wildlife may also be considered in some countries as a lower priority than the humanitarian needs of the local population. For a wildlife response there are additional factors to consider such as access to medical supplies and food for affected animals that may not be welcome in countries struggling with medical and food limitations.

In Africa, two initiatives have been introduced with the aim of improving the continent's ability to respond to marine pollution incidents and ensure better preparedness. They are the Global Initiative for West, Central and Southern Africa (GI WACAF) and the Nairobi Agreement for the Prevention, Monitoring, and Control of Marine Pollution in East Africa.

The GI WACAF project was launched in 2006 as a joint initiative between the International Maritime Organisation (IMO) and the International Petroleum Industry Environmental Conservation Association (IPIECA) to strengthen oil spill preparedness and response capabilities in 22 African countries that span West, Central and Southern Africa (GI WACAF, n.d.). According to GI WACAF, a baseline study of all 22 countries identified key gaps in each country's preparedness (GI WACAF, n.d.). Through the project, countries are given the opportunity to request assistance from GI WACAF to fill these gaps (GI WACAF, n.d.).

The Nairobi Agreement for the Prevention, Monitoring, and Control of Marine Pollution in East Africa was a protocol signed in 1985 (and amended in 2010) as part of the Nairobi Convention which entered into force in 1996 (Nairobi Convention, n.d.). It forms part of the United Nations Environmental Development (UNEP) Regional Seas Programme that aims to address the degradation of the world's oceans and coastlines through sustainable management and use in the Western Indian Ocean. 10 African nations have signed the convention (Nairobi Convention, n.d.). Signatory countries commit to protect the marine environment from harmful marine pollution incidents and to have adequate capabilities to respond to marine incidents providing mutual aid and assistance in the event of a major marine pollution incident (Nairobi Convention, n.d.).

Oiled wildlife response is lacking in both agreements. Historically, oiled wildlife response has been treated separately to mainstream oil spill response. It has often been overlooked or ignored unless championed by Non-Governmental Organisations (NGO). National Oil Spill Contingency

Plans (NOSCPs) often lack the necessary details on oiled wildlife response and in many instances, do not mention oiled wildlife response at all.

The importance of developing robust oiled wildlife preparedness.

Oil drifting towards habitats where marine wildlife can be found needs dedicated measures as part of response operations, to prevent animals becoming oiled. Even where protective measures are in place it is highly likely that the spilled oil will cause casualties. Large numbers of oiled wildlife washing ashore (dead or alive) pose considerable and immediate logistical challenges to the authorities and/or to the responsible party in charge of shoreline response operations. Having a regularly exercised plan and associated preparedness in place that can be rapidly executed by trained people offers the best guarantee that wildlife can be optimally dealt with according to pre-defined objectives and strategies.

How can such oiled wildlife plans and preparedness be developed?

Guidance is available through IPIECA-IOPG in a good practice guide which describes the rationale and methodology for developing robust oiled wildlife preparedness (IPIECA-IOPG, 2014). The oil industry has also adopted a concept known as the preparedness wheel, first presented at a 2019 IPIECA workshop (see Figure 1). The wheel is designed as a conceptual tool to explain the wildlife response planning process and the implementation of preparedness through a multi-year programme. It provides a systematic approach for companies to build their preparedness over a series of different stages, ensuring that the plan can deliver through continued implementation via a structured programme of resourcing, training, exercises, equipment provision and overall maintenance.

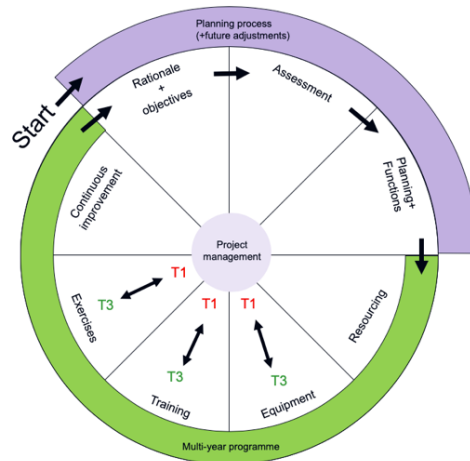


Figure 1 – The oiled wildlife preparedness wheel ((IPIECA-IOGP, 2020)

International wildlife response experts’ approach

The Southern African Foundation for the Conservation of Coastal Seabirds (SANCCOB) is a non-profit organisation whose primary objective is to reverse the decline of seabird populations through the rescue, rehabilitation, and release of ill, injured, abandoned, and oiled seabirds. SANCCOB is one of 10 organisations that comprise the Global Oiled Wildlife Response System (GOWRS) to respond to Tier 3 oiled wildlife incidents. SANCCOB is uniquely placed to respond not only due to its geographic location but also due to unique insight into the various challenges of responding to oiled wildlife in Africa.

GOWRS, together with the Sea Alarm Foundation forms part of the wildlife response services offered by Oil Spill Response Limited (OSRL) under the service level agreement for member organisations. The agreement offers the following services: 1) Continued access to technical advice from Sea Alarm in the form of two technical advisors, one of which can be mobilised to the site of the oil spill, 2) Continued and guaranteed access to Tier 3 wildlife response equipment and 3) Oiled Wildlife Assessment service from GOWRS – a ready to deploy 4-person assessment

team to provide recommendations on the feasibility and scope of a wildlife response during a Tier 3 incident. Sea Alarm and GOWRS services complement each other in the event of an incident.

Assessment of weakest links

A core task for a Wildlife Assessment is to identify the weakest links in the oiled wildlife response ‘chain’. An incident involving significant numbers of animals is complex, as several different puzzle pieces need to come together to make it work successfully. Determining the weakest links and their consequences means that wildlife experts can make a recommendation on what kind of response can be mounted – and the maximum scale at which it can be successful. There will always be factors that are limiting in any wildlife response operation, even if all other factors are satisfactory. Some examples of limiting factors include:

- Difficulty in securing necessary legal permits for international experts to handle, capture and treat oiled wildlife, in which case they cannot legally participate in the response, and it will be left in the hands of local organisations who may not be trained or experienced.
- Cultural/ethical challenges around helping animals – socioeconomic issues such as poverty may lead to frustration or anger from local people that funding, and resources are afforded to animals instead of people. This could cause a backlash against a wildlife rehabilitation operation which is not supported by local communities and lead to a potential reputation issue for an oil company.
- Facilities and infrastructure – a rehabilitation facility needs to be able to provide adequate floor space, light, electricity, water, and ventilation to support wildlife operations so that high welfare standards for animals in care can be provided (EUROWA, 2022). If any of the environmental conditions are insufficient, this will limit the number of animals that a facility can handle and it may even rule out a facility completely. In an African context, temporary rehabilitation facility solutions will be a key consideration in many areas, such as an empty warehouse or large

building, but if temporary plumbing installations are unable to deliver a constant supply of freshwater at the correct temperature and pressure required for washing oiled birds, then this becomes the limiting factor, and the facility cannot function as a rehabilitation facility (only a holding facility) unless this can be rectified.

- Work force – access to sufficient work force may also be a critical limiting factor in areas with less local preparedness, where guaranteed access to local workforces (trained and untrained) is not in place. Personnel will be needed to support operations to capture animals in the field and transport them to facilities, to support rehabilitation operations and a range of other logistics and administrative support tasks. A Wildlife Assessment must consider if there are enough personnel to support operations over the period in which the response is predicted to last and for the geographical area that is targeted.

METHODS

The authors drew on their combined expertise and experience in oiled wildlife preparedness and response in Africa to draft this paper. All examples discussed in the paper are based on first hand experiences of the authors whilst working on the African continent.

DISCUSSION

Case histories and examples of past preparedness projects/responses in Africa

Several oil operators in West Africa commissioned the development of Oiled Wildlife Contingency Plans (OWCP) in past years, which included assessment projects in Angola, Congo, and Gabon. These projects informed each other as they happened during the same period, and all three resulted in draft plans that were delivered to the operators for further decision making and approvals. A team of experts from Sea Alarm and GOWRS conducted site visits in-country for each project to meet with client representatives and pre-identified stakeholders, assess coastlines,

identify species at risk, assess availability of work force, location, and quality of facilities and infrastructure. This was to inform and guide the development of a plan that would include impact scenarios, objectives, limitations, strategies, and the listing of existing and required resources. Some examples of key findings from these assessments are summarised below.

Country	Example of finding	Assessment tasks, observations, and implications
Gabon	Workforce	The assessment team identified a local NGO specialised in monitoring nesting leatherback sea turtles. This was considered an important source of local knowledge regarding sea turtle behaviour, distribution, and abundance. It was agreed that the NGO could be invited to join the response work force in the event of an incident, for which it should become part of a preparedness programme.
Angola	Facilities	The assessment team concluded that there were no known permanent wildlife rehabilitation facilities available, and visited two facilities to assess their suitability and to ascertain if they could be a) secured for use and b) converted into a temporary wildlife rehabilitation facility for birds. The first facility (an empty warehouse) could not be fully inspected inside, so suitability could not be determined. The second facility (empty space where a tent-based facility could be constructed) deemed suitable provided that a number of logistic

		and practical requirements could be successfully met. However, formal permission was not granted to use either facility on a guaranteed basis in an incident.
Congo	Area-specific wildlife response strategies	The assessment team drew up maps depicting potential locations of beachhead collection points for oiled animals. The maps also indicated potential transport methods (car and/or boat) and which routes could be taken to wildlife rehabilitation facilities. The team also considered potential wildlife impacts in remote areas, with large transport distances and/or lack of road access. The area-specific strategies were based on assumptions, which would require further testing through exercises.

Table 1. Wildlife Assessment key findings

The operators who commissioned these projects unfortunately could not take the proposed plans to the next stage of approval or implementation. Therefore, the plans did not move beyond the status of being a proposal for discussion with in-country authorities and other stakeholders, nor did they lead to further investment into resourcing, engagements, training, or exercises. As such, they quickly lose their value as plans that could be used to kickstart a wildlife response in the aftermath of an oil spill incident. Developed plans should be brought alive by being actively discussed and implemented with all stakeholders so that role players become increasingly prepared, well resourced, trained, and exercised. Without that implementation, the response plan will be forgotten, and an incident response will have to start from scratch. In an African context, having an agreed and approved plan that is implemented via these investments is essential.

Following the procedures and philosophy of the preparedness wheel (Figure 1) beyond the first planning phase will be beneficial not only to the company that is investing, but also to the whole socio-economic context of the stakeholders in whom the programme is investing.

Nigeria – Regional bodies can assist with oiled wildlife preparedness.

Nigeria's coastal environment is considered a world biodiversity hotspot with many endemic species. Chronic pollution due to oil spills is one of the biggest threats to the biodiversity, with hundreds of spills occurring each year. Inaccessibility and criminality make a response difficult and for many years the impact on wildlife has not been recognised or addressed.

Towards the end of 2022, The National Oil Spill Detection Agency of Nigeria (NOSDRA) requested support from GI WACAF to host a workshop focused on drafting a National Oiled Wildlife Contingency Plan (NOWCP). A workshop dedicated to oiled wildlife preparedness and response was a first for the GI WACAF Project, and for Nigeria.

GI WACAF subsequently contracted SANCCOB and the International Tanker Owners Pollution Federation (ITOPF) to participate in the workshop as technical advisors. ITOPF is a Not-for-profit organisation that provides a range of technical services in relation to ship-based spills to members and associates, their insurers and government and inter-governmental organisations (ITOPF 2021). These two organisations were brought together to represent how the oiled wildlife response should be integrated into the broader oil spill response strategy.

Over 100 people attended from industry, government, research institutes and conservation NGOs. The Nigerian Government acknowledged the gap in oiled wildlife response and the lack of capabilities in-country. Through already existing initiatives they were able to obtain the assistance

they required. Given its complex socio-economic landscape with multiple barriers to responding, the decision to prioritise drafting a NOWCP is a positive one.

Mauritania – How infrastructure and resources shapes the need for remote response.

Ahead of planned exploratory drilling in southern Mauritania, a feasibility assessment for a wildlife response in the event of an oil spill in Mauritania was carried out. A desktop study and a site visit identified key recommendations. During the site visit to Nouakchott, stakeholders from government, scientists, and NGOs, confirmed the high abundance of a large number of marine wildlife species and unanimously concluded that in-country oiled wildlife capabilities are lacking and urgently needed. Insufficient financial resources and several logistical constraints were cited as the main reasons for the lack of focus on oiled wildlife preparedness.

The feasibility study concluded that a wildlife response would be challenging, and any oil spill would result in a Tier 3 wildlife response. The need to build Tier 1 and Tier 2 capabilities was flagged as a priority and recommendations were made for stockpiling oiled wildlife response equipment, the identification and location of a temporary oiled wildlife response facility, and training requirements for locally-based personnel until specialised responders arrive. Unfortunately, the project ended before any of the recommendations were implemented.

Namibia – Stakeholders working together to drive change.

Recognising the need to holistically conserve endangered seabirds across their entire breeding range, SANCCOB embarked on a partnership with neighbouring Namibia to address threats driving population declines. A new NGO, the Namibian Foundation for the Conservation of Seabirds (NAMCOB) has been established in Namibia. One of the objectives is to improve Namibia's preparedness and Tier 1 and 2 response capabilities.

Through stakeholder engagement, it was evident that Namibia lacked the resources to prepare or respond to an oil spill incident affecting marine wildlife. Funding through the Debmarine-Namdeb Foundation, the corporate responsibility investment vehicle for Debmarine Namibia and Namdeb Diamond Corporation enabled an action plan to prioritise this requirement. A NOWCP was drafted in partnership with key stakeholders including the Ministry of Fisheries and Marine Resources (MFMR); Ministry of Environment and Tourism (MET) and the Ministry of Works and Transport (MWT). This NOWCP was an important first step towards developing Namibia's oiled wildlife preparedness and response capability in accordance with international standards.

In accordance with the IPIECA Preparedness Wheel in Figure 1, equipment and training were identified as priority areas of preparedness. Funding was approved to procure oiled wildlife equipment stockpiles, held in two strategic coastal locations. This equipment will be managed and maintained by NAMCOB and has already been "tested" during a joint industry-government oil spill exercise. Identified government officials, NGO, academia, and the private sector were selected for training which focussed on a combination of practical and theoretical aspects covering risk assessments, effects of oil on wildlife, field assessments, rescue, stabilisation, transportation, and the rehabilitation process.

The collaboration between the diamond mining industry and NGOs has demonstrated that our collective goal of improving Tier 1 and 2 capabilities was achievable and has further sparked interest from the oil industry on potentially forming an industry co-op for national oil spill preparedness and response. The bold strides taken by the diamond mining sector should be used as an example of how an industry player can lead positive change and make a responsible contribution to the country's preparedness initiatives.

South Africa – how Tier 1 and Tier 2 capabilities can demonstrate effective preparedness.

South Africa is a maritime nation with a coastline of over 3900km (including the coastline around the Prince Edwards Islands). South Africa is a global hotspot for oil pollution and has experienced several major oil spills; examples include the *Apollo* in 1994 and the *MV Treasure* in 2000, both of which affected thousands of African penguins and other seabirds (Wolfaardt, et al., 2009; Vanstreels, et al., 2023). The *Treasure* is considered the largest oiled wildlife response and one of the most successful responses globally (Crawford, et al., 2000; Barham, et al., 2006; Wolfaardt, et al., 2009; Vanstreels, et al., 2023). The incident highlighted the importance of preparedness as considerable investment had been made to implement learnings from previous spills in South Africa where wildlife was affected.

Despite this history, South Africa has struggled to integrate oiled wildlife response into broader response operations, and only in recent years has there been improvement. A noticeable development was the inclusion of oiled wildlife response into a large-scale industry-government national deployment exercise in 2022 (BCC SAMSA, 2022) where specific wildlife objectives were developed and tested during the exercise. In addition, oiled wildlife response is being integrated into government and industry working groups. Oiled wildlife response is now a standing agenda item at South Africa's Incident Management Organisation (IMOrg), responsible for managing pollution incidents at sea and maintaining preparedness during peace time. South Africa has made strides to improve its oiled wildlife preparedness and response capabilities which includes drafting of a NOWCP and colony-specific plans, stockpiling of oiled wildlife response equipment in two strategic provincial locations and training of personnel in oiled wildlife response.

South Africa has the distinct advantage of established seabird rehabilitation facilities with trained personnel capable of responding to an oiled wildlife incident. These facilities are entirely

NGO run and funded through donations and grants, which can be a limiting factor. South Africa highlights the benefit of Tier 1 and Tier 2 capabilities to drive preparedness, ensuring that preparedness activities are implemented and monitored on a regular basis before an oil spill incident.

Responding To oiled wildlife incidents in inland areas

Onshore drilling is expected to accelerate and drive overall activity in Africa in coming years and is set to continue playing a dominant role in Africa's energy landscape (Energy Capital & Power, 2023). With this growth, the risk of oil spills is becoming more prevalent in inland areas. A notable example is the Kingfisher/Tilenga oil exploration project in the Lake Albert region of Uganda with the East African Crude Oil Pipeline (EACOP) which will transport oil through Uganda and Tanzania to the Indian Ocean.

Responding in these inland African environments brings new challenges for Tier 3 wildlife responders. To date, the international community of experienced oiled wildlife responders have been focusing on oil spill incidents involving marine and aquatic birds, sea turtles and marine mammals such as pinnipeds. An inland response would require working with species for which treatment protocols do not exist and where handling techniques maybe a challenge (e.g. hippopotamus). The experience developed in this particular area has both generic and specific aspects. The specific aspects include protocols, facility design and setup for these groups of species. Generic aspects include disciplines of response mobilisation, logistics, and standards relating to responder health and safety, animal health and safety, minimising environmental footprints, considerations for hazing and deterrence, etc. Also, the generic approaches connected to primary (monitoring, keeping pollutant away from species), secondary (keeping species away

from the pollutant) and tertiary response (dealing with pollutant impacted animals) do apply. It is these generic aspects in particular that can be easily projected onto inland pollution incidents.

If inland incidents would have aquatic components in which the pollutant spreads in/on the water, there may be aquatic species such as birds threatened or impacted. Here protocols can be used. In the cases where extraordinary species may become threatened or impacted, e.g. macrofauna such as hippos, hyenas, or dangerous species such as spiders, snakes, crocodiles, it would be wise to invest into developing specific response objectives, strategies, and veterinary treatment protocols.

To this end, Tier 3 wildlife experts should consider gaps in their current capability and work with experts who understand the life cycle of the new terrestrial/amphibious species at risk and those specialised in husbandry to determine what type of protocols could be used for inland species. Proposed response strategy options should be discussed with local authorities and nature conservation/wildlife agencies, to determine which species should be considered as priority for rehabilitation attempts and which would be identified as the target of a monitoring programme to determine impacts. Industry may face the risk of an oiled wildlife incident in these new areas so should also consider the communications aspect in advance of an incident if large mammals could be impacted, which is better than waiting until a situation where it is not possible to do anything to help affected animals.

CONCLUSION

Despite several initiatives, Africa remains unprepared for a marine pollution incident affecting wildlife. Apart from South Africa, the remaining African countries will require Tier 3 assistance for a minor wildlife impact. Many countries do not have personnel trained in animal rescue and rehabilitation and for several countries, various logistical and security constraints will severely

delay the arrival of Tier 3 capability which will ultimately limit the effectiveness of the response. In addition, the costs incurred for bringing in international assistance are unsustainable and could potentially impede a wildlife response from happening.

The case studies presented here demonstrate that adequate in-country support is critical to successful implementation of any preparedness activities. Recent examples have shown that stakeholders outside government such as industry and NGOs can successfully champion and drive improvements working alongside government to fill the gaps and improve preparedness. As the risk of oil spills continue to be a concern for Africa, stakeholders have a responsibility to invest into preventing a major wildlife incident by working together to build Tier 1 and Tier 2 capabilities. As a minimum recommendation, this includes detailed and inclusive planning, training and skills development, equipment provision and regular evaluation through exercises.

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