



DISCUSSION PAPER: BALANCING THE EXPLOITATION OF MINERAL AND HYDROCARBON RESOURCES WITH CONSERVATION OF BIODIVERSITY

Spatial overlaps and strategic approaches for sustainable development options



Mana Pools National Park, Zimbabwe

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Spatial Overview of overlaps between Extractive Industry activity and mineral potential and Protected Areas in the EAC region

Collectively, the East African Community (EAC) (Rwanda, Burundi, Kenya, Tanzania and Uganda) manages 1583 different types of protected areas. This amounts to 24.22% of all the protected areas in Africa. These protected areas are unique spaces that have been delineated due to their natural, ecological or cultural value. Many of these areas are under development pressure, including from the extractive industry sector. Extractive industries are important components of national economies, specifically in developing countries. However, it is essential to balance the protection of protected areas with that of mineral, oil and gas extraction and exploitation if we are to achieve our goals of sustainable development. Having an understanding of where the possible overlaps and potential conflicts between protected areas and extractive industries occur provides an opportunity to proactively address any existing and emerging challenges.

Objective

The analysis provides an opportunity to have a contextual perspective of the overlap between extractive industry activities and protected areas in the East African Community. The results provide insight into spatial extent of this overlap. Furthermore, this contextual analysis also provides insight into the possible systemic impact of the extractive industry activity on protected areas.

Methodology

The spatial analysis examines the direct overlap as well as a 20km proximity between any form of extractive industry activity and potential mineral deposits with protected areas. The extractive industry data provides a spatial context for active extraction of minerals, oil and gas, the location of oil and gas fields, mineral, oil and gas licences and gas pipelines. The data does not provide sufficient information on the development stage (active exploration, inactive exploration, production or closed.) The data on mineral deposits provides a context for possible future interest for extraction.

The direct spatial analysis is a query of all protected areas that may coincide/overlap with any of the extractive industry data listed above. However, to ensure confidence in the results of the analysis it is important to compensate for any uncertainty of the exact coordinates of some of the datasets, in particular the point localities. The proximity analysis aims therefore to compensate for spatial uncertainty and extent in the extractive industry data. A further benefit of applying a proximity analysis is that it potentially identifies protected areas that may be directly affected by growing exploration as well as by secondary activities related to the extraction. The proximity analysis identifies protected areas within a 20km radius of the extractive industry activity, interest and mineral deposits.

About the Data

The analysis is based on mining and mineral data that was obtained from primary sources, such as the U.S. Geological Survey, digitized from maps, captured from reports and obtained from internet

searches. The protected areas information is obtained from the Word Database on Protected Areas, which is maintained by the UNEP-World Conservation Monitoring Centre.

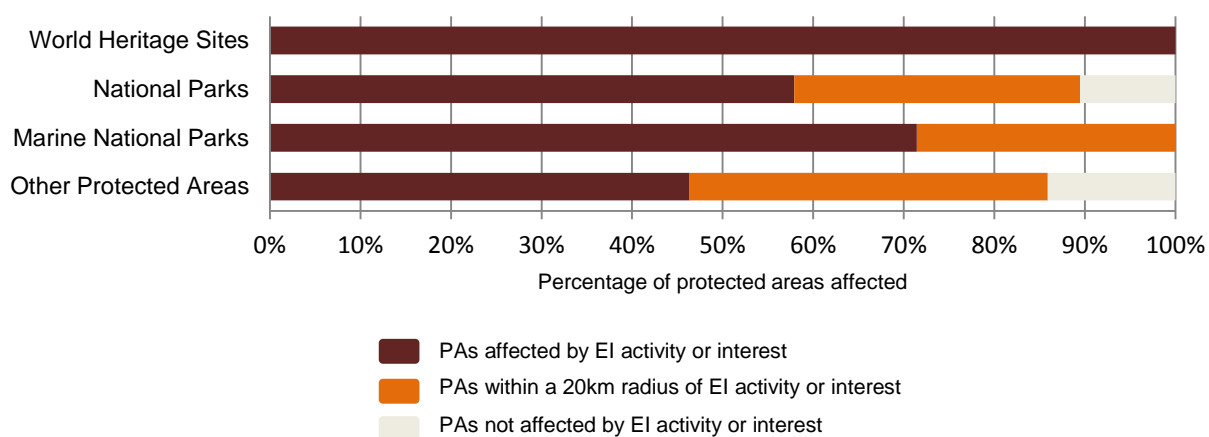
The most accurate and complete data on mining operations are held by governments and private companies. Access to comprehensive mining data proves to be challenging. However, without access to the data it becomes difficult to support scientifically defensible policy formulation and decision making. New research is stifled and the monitoring of progress against international agreements such as the Aichi targets becomes difficult. There are a number of limitations that must be considered when interpreting the results of this analysis due to the fact that the latest extractive industry data is not accessible. This can be overcome through the promotion of access to the data. The data on mining operations can be made accessible without compromising intellectual property rights, competitive information or any trade secrets. This can be achieved through a process of severing any sensitive data from that which may be publically shared.

The following limitations must be considered when interpreting the data:

- The available data on mining operations, infrastructure and mineral deposits are the best available information in the public domain.
- The provenance of the data is not always available, i.e. the exact source of the data cannot be established.
- The data has been captured over time and therefore the analysis is not time-based snapshot of current extractive industry activity.
- The data does not reflect small scale or micro mining activities.
- Many large protected area sites may only have a small portion affected by extractive industry activity or mineral deposits and would therefore require site specific analysis.
- As mentioned, the data does not provide information on the development stage of the extractive industry activity.




















KENYA

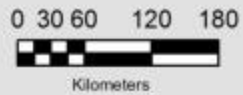
Protected Area (PA) type	Number of PAs in the network	No of PAs affected by EI activity or interest	No of PAs within a 20km radius of EI activity or interest	No of PAs not affected by EI activity or interest
World Heritage Sites	3	3	-	-
National Parks	19	11	6	2
Marine National Parks (including reserves)	7	5	2	-
Other Protected Areas	220	102	87	31
Total	249	121	95	33



Protected Areas and Extractive Industries Kenya

Legend

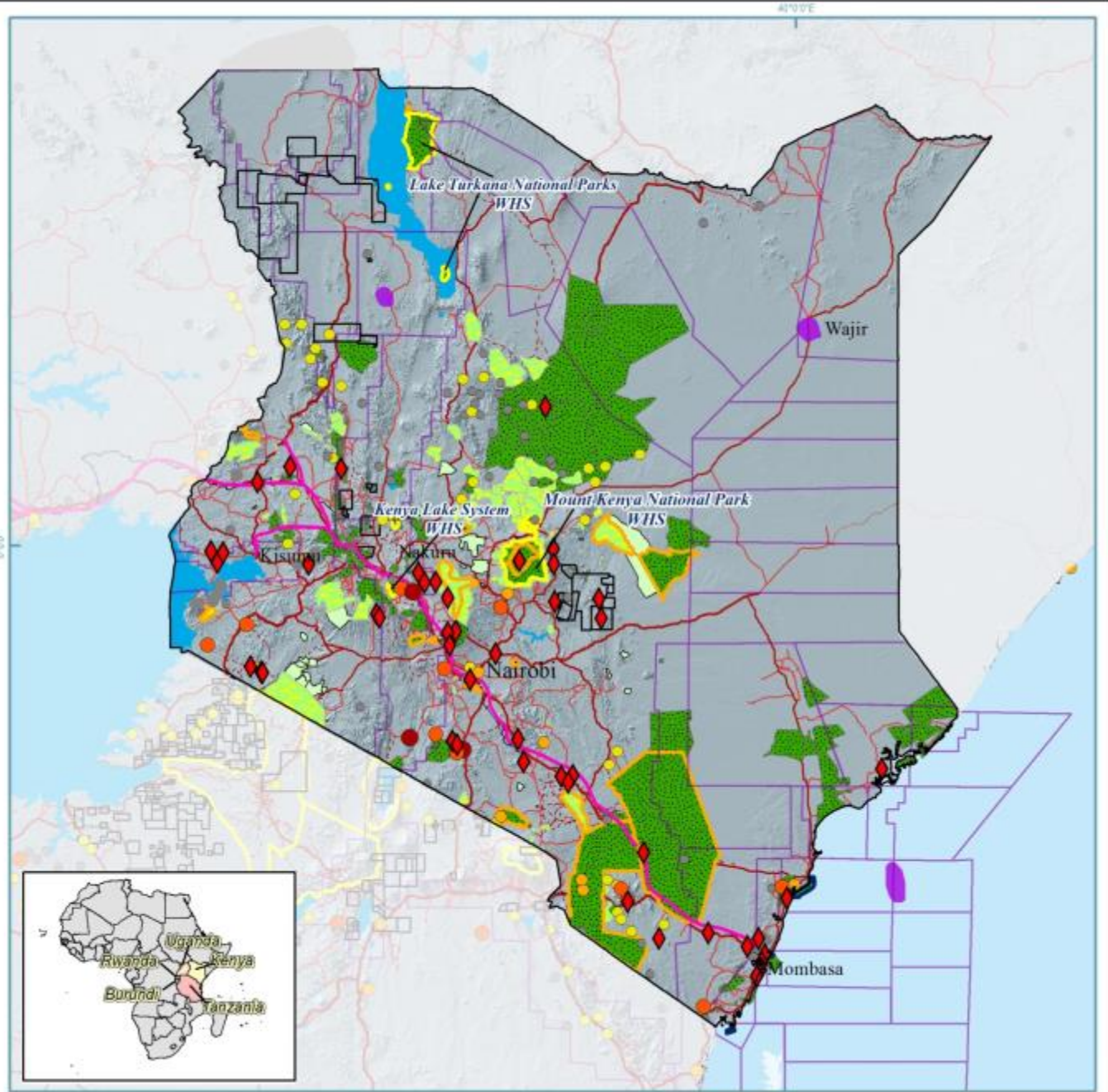
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|---|--|
|  Protected Areas directly affected by extractive industry activity or interest |  Lakes |
|  Protected Areas within a 20 km radius of extractive industry activity or interest |  Roads |
|  Unaffected Protected Areas |  Railroad |
|  World Heritage Sites | |
|  National Parks | |
|  Marine National Parks | |
|  Active Exploration | Mineral Deposits |
|  Licenses - Mineral |  4 |
|  Licenses - Oil and Gas |  3 |
|  Gas Pipeline |  2 |
|  Oil and Gas Fields |  1 |
| |  0 |



Funding & Implementing Partners

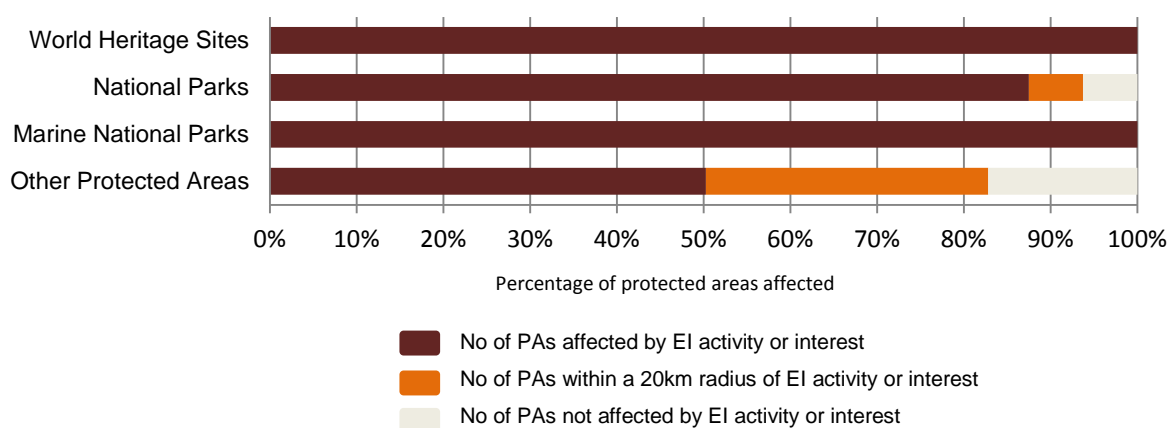


Data Sources





















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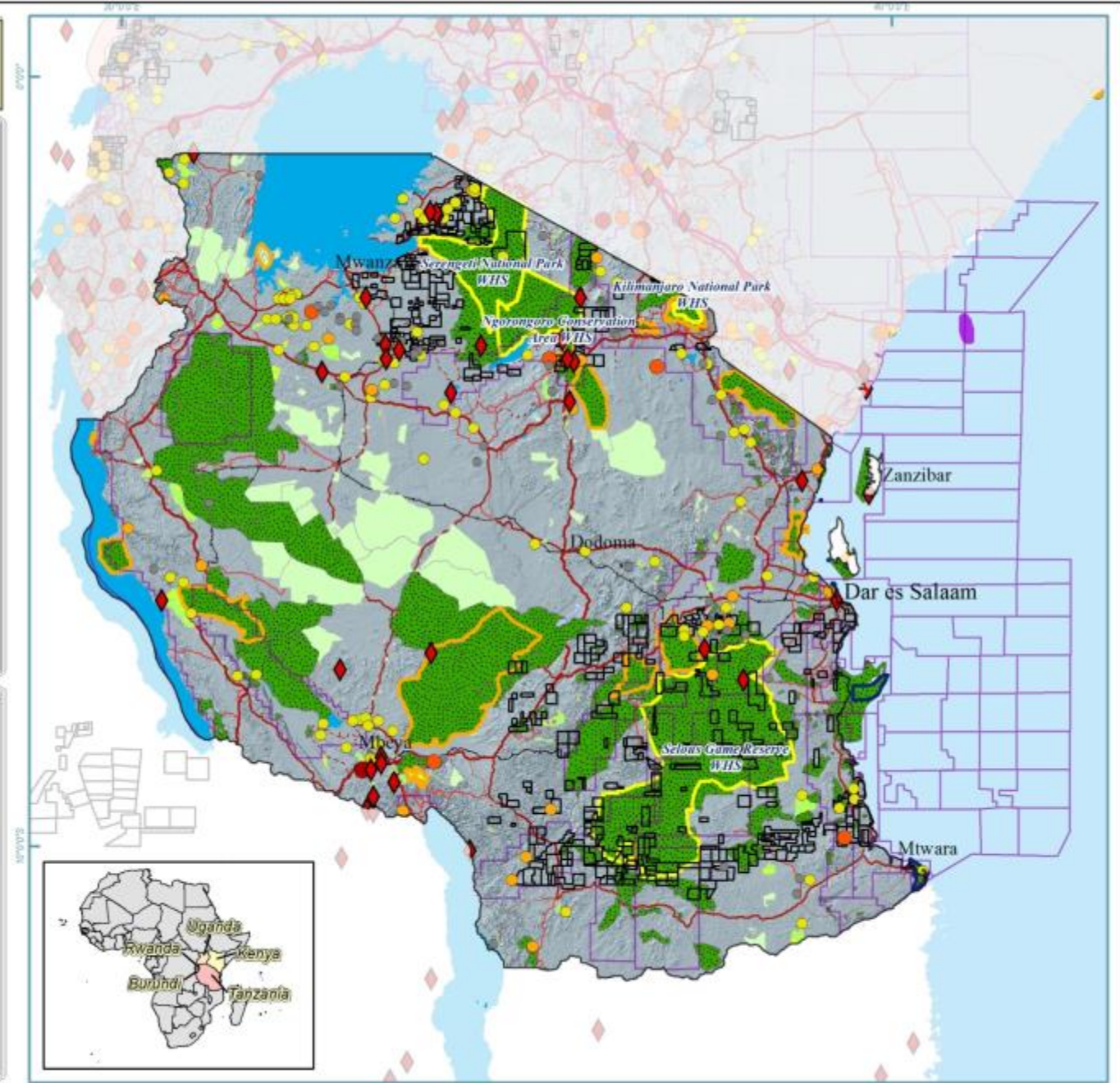
Protected Area (PA) type	Number of PAs in the network	No of PAs affected by EI activity or interest	No of PAs within a 20km radius of EI activity or interest	No of PAs not affected by EI activity or interest
World Heritage Sites	4	4	-	-
National Parks	16	14	1	1
Marine National Parks (including reserves & sanctuary)	5	5	-	-
Other Protected Areas	593	298	193	102
Total	618	321	194	103



Protected Areas and Extractive Industries Tanzania

Legend

- | | |
|---|--|
|  Protected Areas directly affected by extractive industry activity or interest |  Lakes |
|  Protected Areas within a 20 km radius of extractive industry activity or interest |  Roads |
|  Unaffected Protected Areas |  Railroad |
|  World Heritage Sites | |
|  National Parks | |
|  Marine National Parks | |
|  Active Exploration | Mineral Deposits |
|  Licenses - Mineral |  4 |
|  Licenses - Oil and Gas |  3 |
|  Oil and Gas Fields |  2 |
| |  1 |
| |  0 |



Funding & Implementing Partners



giz German Development Cooperation

Data Sources



U.S. Energy Information Administration (EIA)

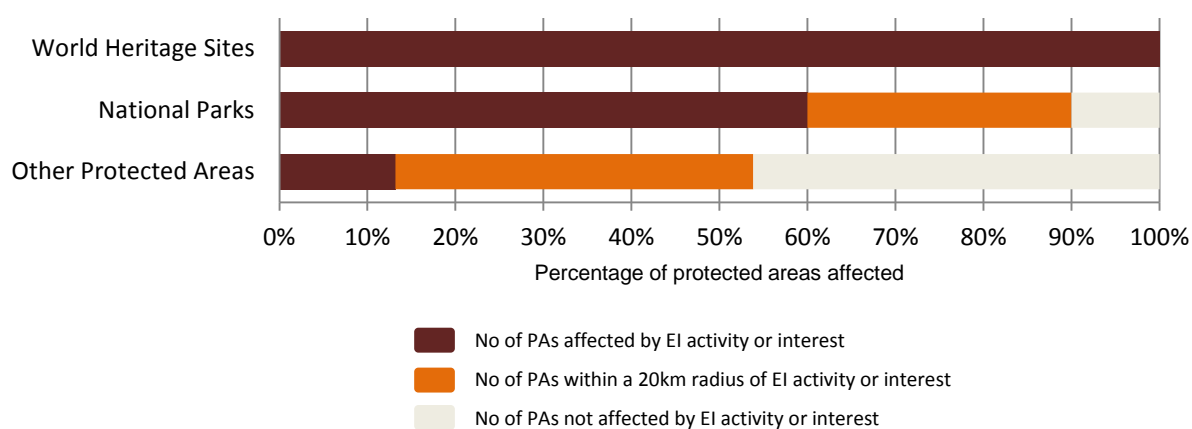
Transboundary Foundation

U.S. Geological Survey

World Heritage Foundation





















UGANDA

Protected Area (PA) type	Number of PAs in the network	No of PAs affected by EI activity or interest	No of PAs within a 20km radius of EI activity or interest	No of PAs not affected by EI activity or interest
World Heritage Sites	2	2	-	-
National Parks	10	6	3	1
Other Protected Areas	691	91	281	319
Total	703	99	284	320



Protected Areas and Extractive Industries Uganda

Legend

- | | | | |
|---|---|---|----------|
|  | Protected Areas directly affected by extractive industry activity or interest |  | Lakes |
|  | Protected Areas within a 20 km radius of extractive industry activity or interest |  | Roads |
|  | Unaffected Protected Areas |  | Railroad |
|  | World Heritage Sites | | |
|  | National Parks | | |
|  | Marine National Parks | | |
|  | Active Exploration | Mineral Deposits | |
|  | Licenses - Mineral |  | 4 |
|  | Licenses - Oil and Gas |  | 3 |
|  | Oil and Gas Fields |  | 2 |
|  | Oil and Gas Pipeline |  | 1 |
|  | Oil and Gas Basins |  | 0 |



Funding & Implementing Partners

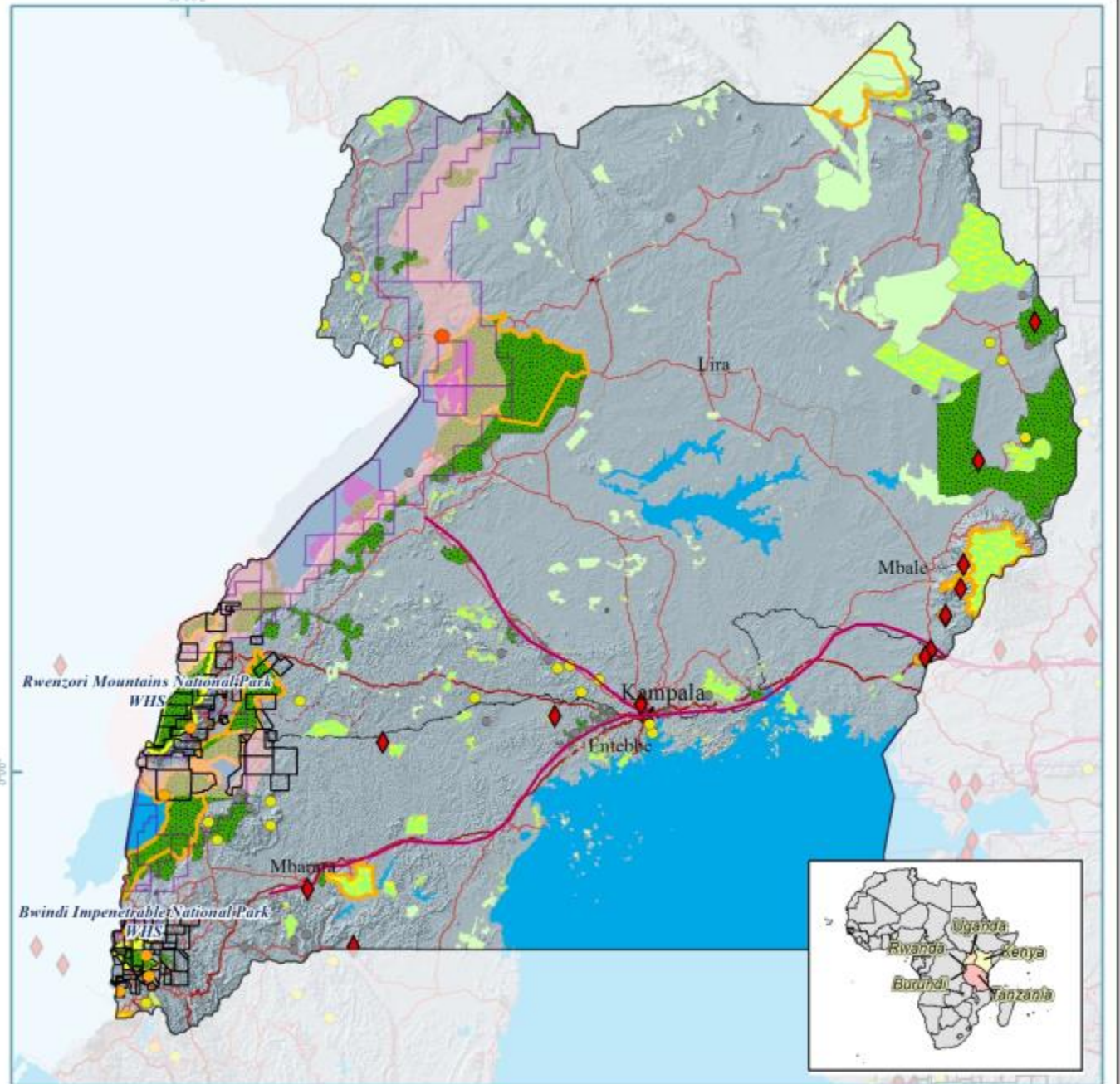


giz German Development Cooperation

Data Sources

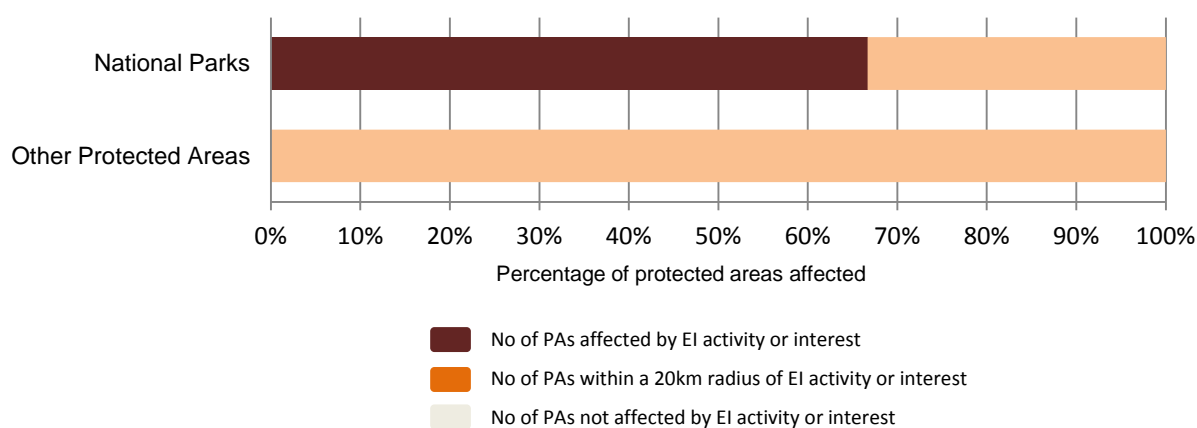


U.S. Energy Information Administration (EIA) | Transboundary Foundation | U.S. Geological Survey | African World Heritage Fund



RWANDA

Protected Area (PA) type	Number of PAs in the network	No of PAs affected by EI activity or interest	No of PAs within a 20km radius of EI activity or interest	No of PAs not affected by EI activity or interest
National Parks	3	2	1	-
Other Protected Areas	3	0	3	-
Total	6	2	4	-

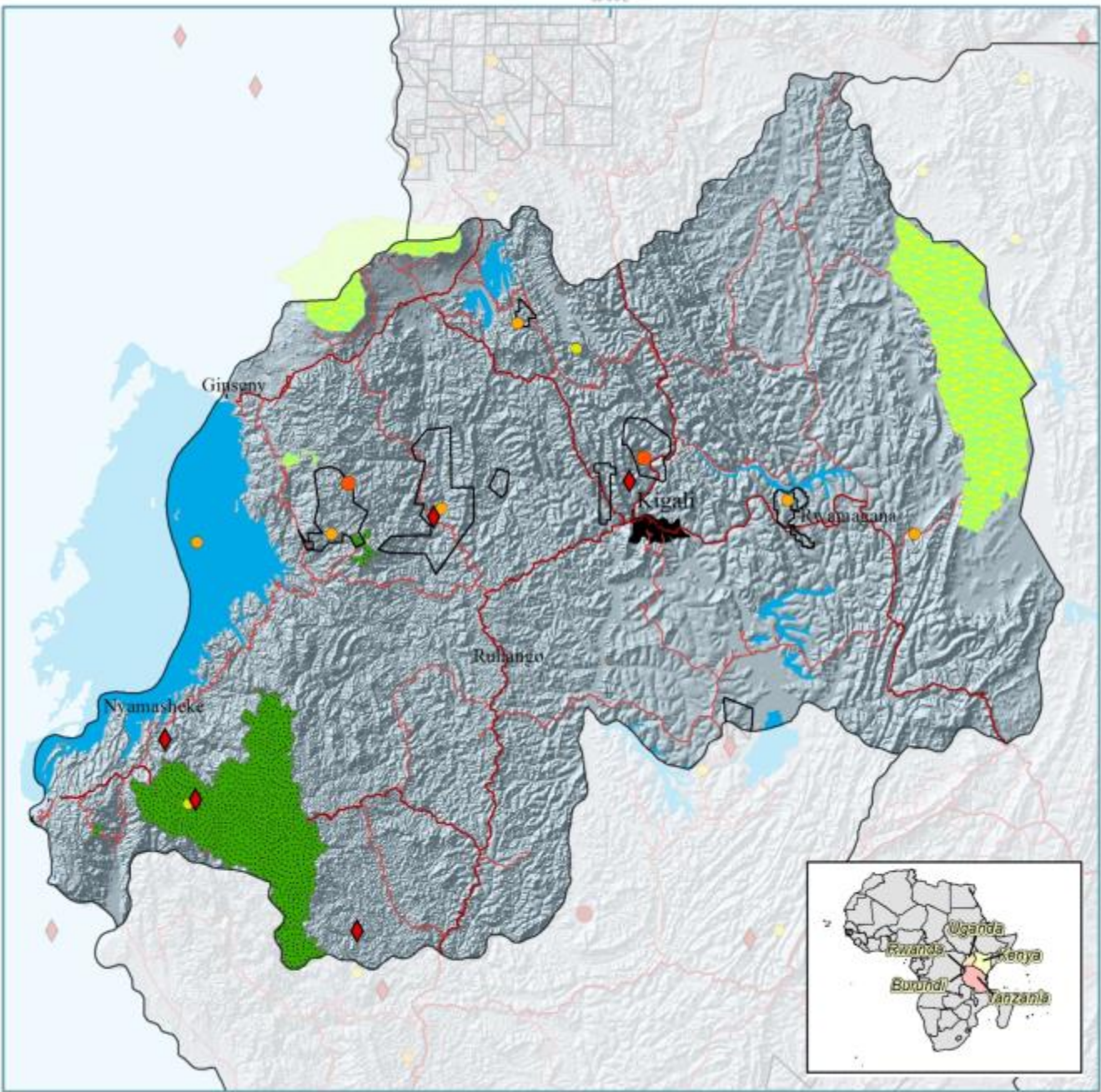


Protected Areas and Extractive Industries Rwanda

Legend

- Protected Areas directly affected by extractive industry activity or interest
- Protected Areas within a 20 km radius of extractive industry activity or interest
- Unaffected Protected Areas
- National Parks
- Lakes
- Roads
- Railroad
- Active Exploration
- Licenses - Mineral
- Mineral Deposits: 4, 3, 2, 1, 0

0 5 10 20 Kilometers



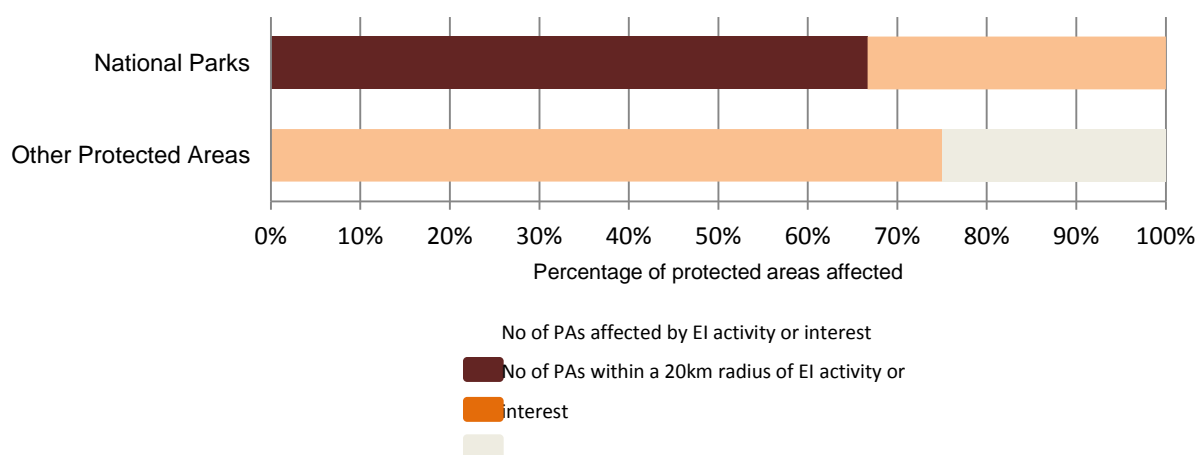
IUCN BIOPAMA

Funding & Implementing Partners: European Union, giz, etc.

Data Sources: eia, USGS, African Heritage, etc.

BURUNDI

Protected Area (PA) type	Number of PAs in the network	No of PAs affected by EI activity or interest	No of PAs within a 20km radius of EI activity or interest	No of PAs not affected by EI activity or interest
National Parks	3	2	1	-
Other Protected Areas	4	0	3	1
Total	7	2	4	1



Protected Areas and Extractive Industries Burundi

Legend

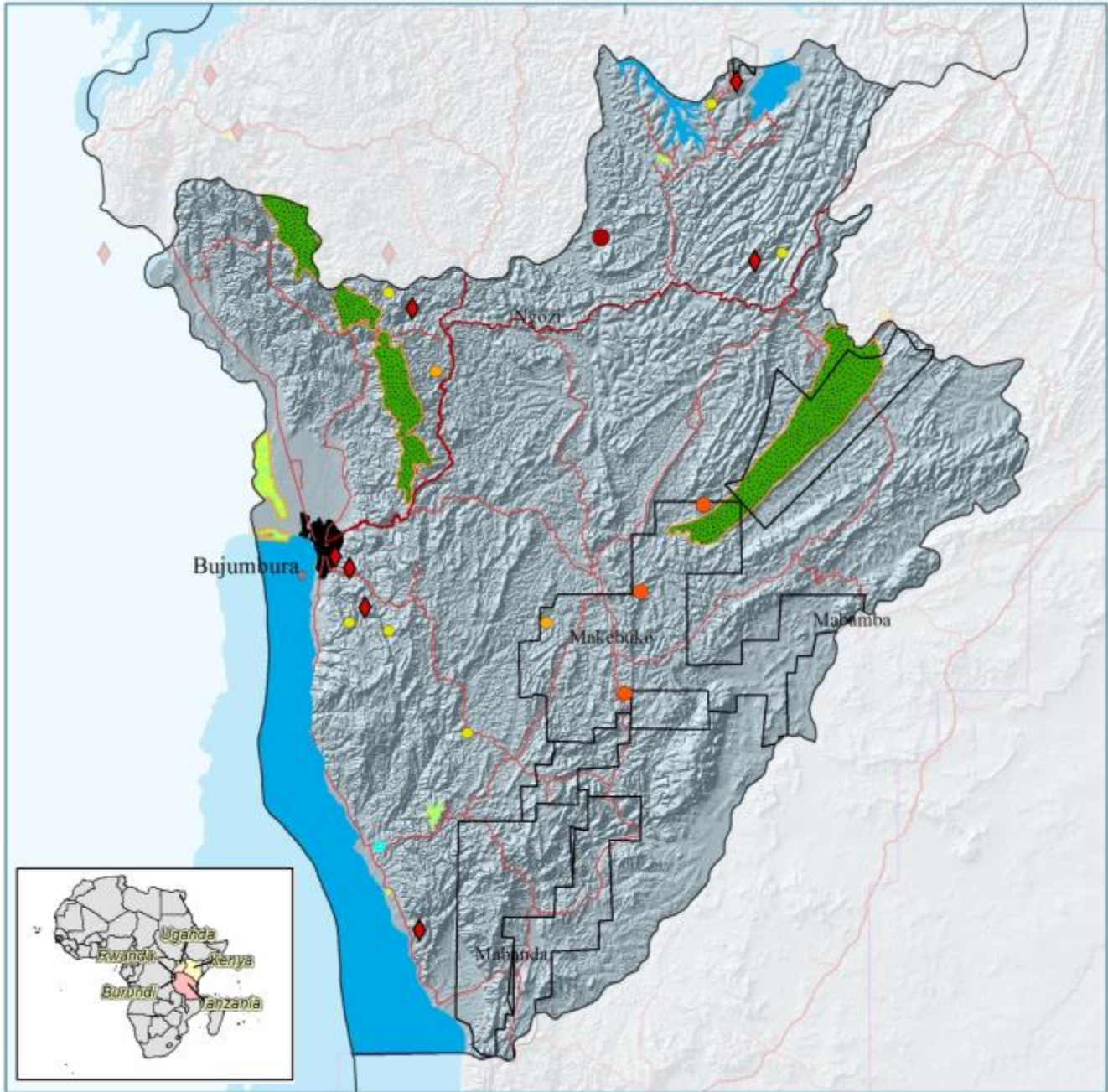
- Protected Areas directly affected by extractive industry activity or interest
- Protected Areas within a 20 km radius of extractive industry activity or interest
- Unaffected Protected Areas
- National Parks
- Lakes
- Roads
- Railroad
- Active Exploration
- Licenses - Mineral
- Mineral Deposits: 4
- Mineral Deposits: 3
- Mineral Deposits: 2
- Mineral Deposits: 1
- Mineral Deposits: 0



Funding & Implementing Partners



Data Sources



Sustainable Development of Extractive Industry, especially Oil and Gas Exploration and Exploitation, in Africa

Message to the AMCEN meeting, February 2015

General wording:

Extractive Industries are a rapidly growing sector across Africa. The developments in the sector provide an important opportunity for economic growth but also bring with it considerable risks in terms of potential environmental and societal impacts. We therefore need a strategic approach to developing this sector to avoid the mistakes of the past, including sharing of experiences and information amongst countries. In particular, attention should be given to addressing potential cumulative impacts and risks at regional scale and facilitating a landscape approach to such developments. To be effective, these approaches necessitate multi stakeholder engagement, in which African governments, private sector and civil society work together to improve and support the mainstreaming of biodiversity considerations in the planning and development of the extractive industries sector.

We would like to call upon the African Ministers of Environment to recognize Extractive Industries as an emerging sector requiring dedicated attention in terms of facilitating the mainstreaming of environment, biodiversity and social considerations and of supporting capacity building, including the exchange of experiences and lessons learnt amongst African nations, as well as in defining and establishing mechanisms for cooperation and coordination to support a landscape approach to such developments, ensuring that the appropriate tools and information are used to informed the development of the sector.

Formal decisions/declaration of AMCEN wording:

Recalling the AMCEN 14th session statement which emphasized the importance of embedding natural resource management in national development plans;

Recalling the Statement By African Civil Society During The Opening Session Of The 14th Session Of AMCEN, held in Arusha, Tanzania, which emphasized the need for an inclusive, transparent and open sustainable development process and the need to commit to work together – leaders and the citizens, local communities, civil society, private sector and other relevant stakeholders to create the conditions and mechanisms that will guarantee the fulfilment of this vision of the “Africa We Want”;

Recognizing that development and natural capital are inseparable and that natural resource management has to be at the core of development decision-making. Natural capital, including biodiversity, should be viewed not as an obstacle to development but as an opportunity to enhance the state and resilience of social and economic spheres of societies;

Recognizing the rapidly and recent growth of the extractive industries sector in Africa and its potential positive contribution the social and economic development of the region;

Concerned about the potential negative environmental and social impacts related to the rapid growth of the extractive industries sector in Africa, especially in some of the most sensitive ecosystems, protected and non protected areas and in terms of cumulative impacts at regional scale;

Concerned that if such potential negative environmental impacts are not pro-actively assessed, avoided and managed, it would affect the sustainable social and economic development of countries and of the region and erode the natural capital that is essential for this development;

We therefore urge AMCEN member states to:

Improve strategic planning regarding the development of the extractive industries sector, ensuring the **pro-active mainstreaming of environment, biodiversity and social considerations in such planning processes**;

Commit to **Strategic Environmental Assessments (SEAs) before** initiating any extractive industry projects

Adopt a landscape approach and stronger multi stakeholder engagement in the strategic planning and development of the extractive industries sector in Africa, at a local, national and regional scale;

Collectively to develop policies, guidelines, legislation and other strategies or mechanisms to **incorporate natural capital risks, opportunities and dependencies assessments in their decisions related to the development of the extractive industries sector**, to **improve integrated planning** and support sustainable development of the sector in Africa;

Consider integrated economic valuation of the natural capital in their decisions related to the development of the extractive industries sector, to improve decision making;

Commit to **'Net Positive Impact' or, at a minimum, 'No Net Loss'** in all extractive industry projects;

Commit to **Independent Scientific Reviews of Environmental, Social, Health and Human Rights Impact Assessments (ESHIA)**s of any extractive industry projects;

Support mechanisms to improve capacity building and information sharing between countries to facilitate the sustainable development of the extractive industries sector in Africa while protecting the natural capital of the continent;

Continue to engage and collaborate with IUCN/BirdLife International/WWF and the wider civil society to benefit from their experience and the tools that they have developed for this sector.

Strategic Approaches towards balancing Protected Area land uses with extractive industry development

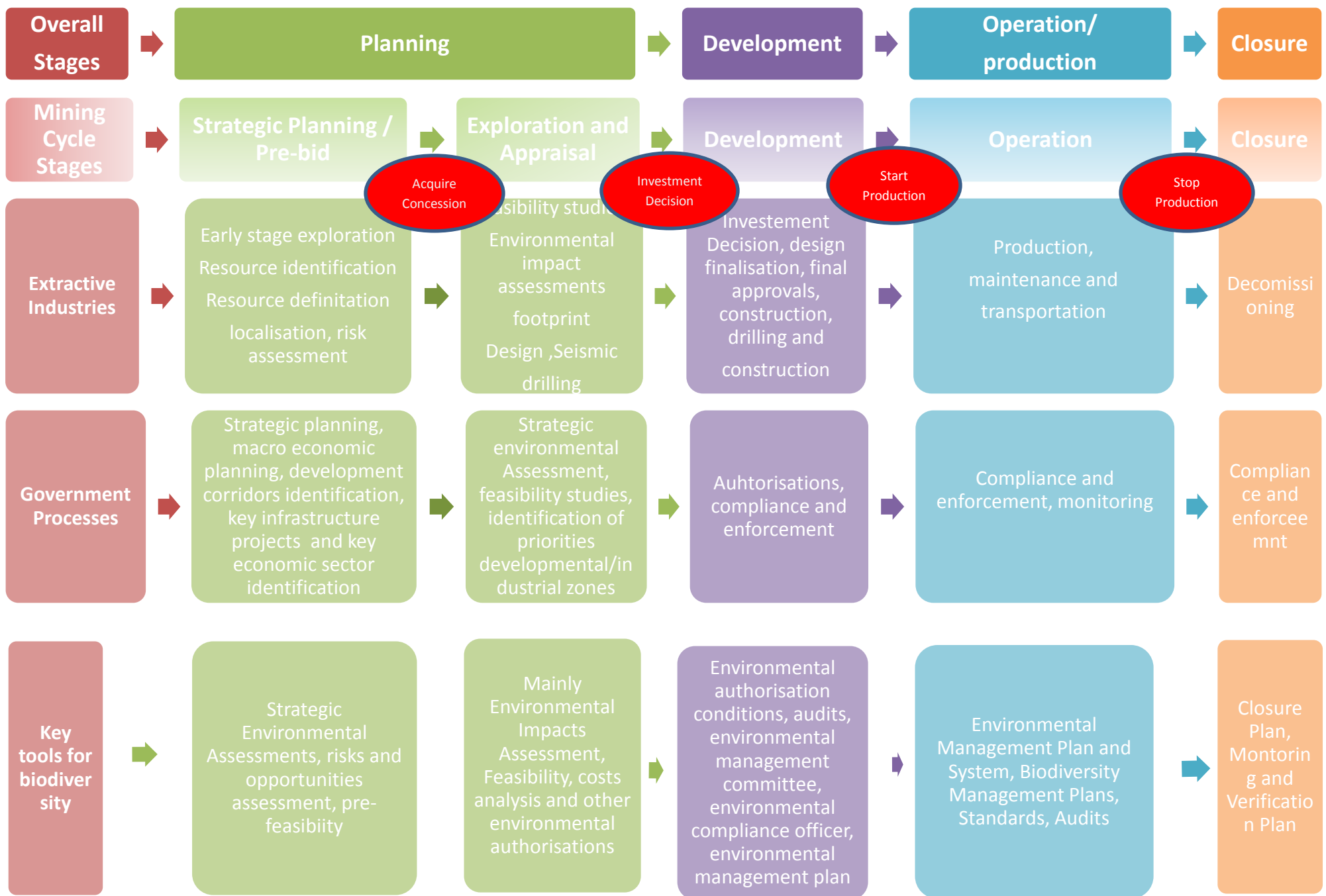
Eastern and Southern Africa has realised fast economic development over the last decades. One of the major contributors to this development in many countries of the region is the exploitation of mineral and hydrocarbon resources following the discovery of a number of large deposits/reservoirs. In addition, the region supports extraordinary biodiversity that also plays a key role in the region, contributing to national economies directly, in the form of e.g. nature tourism and employment opportunities and indirectly, in the form of ecosystem services that support most development, including extractive industries. Water in particular is an important ecosystem service relevant to the extractive industries sector. The challenge is that the extractive industry sector may have severe impacts on biodiversity and ecosystem services, at different levels of temporal and spatial scales, which may compromise vital ecosystem services and have far-reaching impacts on other major economic growth sectors such as tourism, especially when these activities take place in or in the vicinity of Protected Areas and other key biodiversity areas. In addition, the impact on ecosystem services even outside of Protected Areas needs careful consideration to ensure sustainable solutions.

Globally and regionally, some companies in the extractive industry sector have recognised the value of Protected Areas and biodiversity, and made a commitment to either not exploit minerals inside certain categories of protected areas such as natural World Heritage sites, despite potential political and commercial disadvantages (no-go commitments) or take the necessary corrective and remedial measures to safeguard ecosystems. In addition, there is a global move towards more sustainable solutions for exploitation of mineral and hydrocarbon resources, showcased by e.g. the Net Positive Impact Alliance and the ICCM Good Practice Guidance for Mining and Biodiversity at global level.

Governments have to carefully weigh the income generated by the exploitation of natural resources against the economic, social and environmental benefits of biodiversity conservation. This requires political balancing and internal coordination of various ministerial departments and services as well as strategic approaches to land use and possible scenario planning at a national scale. Governments need to engage with the extractive industry sector companies to identify opportunities in spatial planning, operational practices and management systems that allow for mineral extraction and environmental responsibility. The extractive industry also has to take a proactive role in ensuring that their operations seriously take into consideration the necessary management measures for the conservation and restoration of biodiversity. However more often both governments and developers lack proper guidance for ensuring sustainable exploitation of such resources.

The following pages provide suggestions and discussion points for strategies and approaches to address the growing competition between biodiversity conservation and extraction of minerals and hydrocarbons. These are intended to solicit feedback on this document that will provide guidance for a more detailed publication planned for development over the next 6 months.

Interested contributors (data and information) should please contact Christine Mentzel (Christine.mentzel@iucn.org) or Marie Parramon Gurney (marie.parramon@iucn.org).



Overview of Extractive Industry Development Cycle and decision points along the value chain

Key areas for intervention – Government

Law:

- Robust legal frameworks that emphasise avoidance of impacts over mitigation;
- Extensive consultation with all stakeholders, including all necessary government departments, is carried out when developing new environmental laws or guidelines, with the goal to ensure their ultimate practicality and validity;
- Laws, regulations and policies are regularly monitored to track impact and initiate revisions as required;
- Trigger laws are in place to refer proposals likely to have high environmental or biodiversity impacts to independent government authorities for assessment;
- Relevant laws require Ministers to consider the nation's international commitments re: environmental conservation agreements and conventions (protected areas, biodiversity, threatened species) when reviewing a project proposal to ensure the project's approval would not result in conflict with those commitments. This includes commitments such as
 - World Heritage Convention, in particular No Go commitments for World Heritage Sites
 - Convention on Biological Diversity, in particular Aichi Target 11
 - RAMSAR Convention
 - Etc.
- Stakeholder access to information is free and protected by law;
- The language of risk is used by the government to bring stakeholders to the table and encourage their cooperation/compliance with environmental laws/regulations/guidelines;
- The use of best practice principles (BPP) of an international standard in both the public and private sectors is demanded by law and policy;
- Offsets—a last resort option—are legally required when there is a net loss of biodiversity, although it is also recognised by law that not everything can be offset;
- Capacity building via specialised training on the implementation/application of environmental laws and guidelines is provided to stakeholders in the public and private sectors;
- All production spheres are legally recognised (from major producers to the ASM sector).

Strategic Planning:

- Comprehensive state and/or federal biodiversity conservation strategies exist and are based on appropriate time horizons;
- Specific guidance for biodiversity and protected area conservation within extractives industries has been developed;
- Strategic environmental assessments (SEAs) are promoted for future plans, programmes and policies that are likely to have significant environmental impacts, with the key goal to understand potential cumulative impacts;
- Systems have been developed that capture, analyse and present environmental information (such as spatial mapping of protected areas and key biodiversity zones) in an accessible way that supports the integration of potential biodiversity issues in extractives projects from the very earliest stages;
- **Strategic lands use planning** supported by robust evaluation of economic, environmental and social implications of competing land uses (minerals and hydrocarbon extraction and biodiversity conservation) to ensure that development does not exceed ecological thresholds. Tools/information needed for strategic land use planning includes:
 - Economic development plan

- Regional/national conservation plan
- Stakeholder consultations and dialogues

Exploration and Appraisal:

- Stringent guidance exists on the government’s objectives regarding protected area and biodiversity conservation—criteria against which project proposals must be assessed;
- All relevant departments (mining, environment, tourism) have a mandatory role in the project approval process;
- Environmental impact assessments (EIA) can be classified as ‘international best practice’ (against, for example, the International Finance Corporation’s [IFC] Performance Standards);
- Project approval processes use qualified experts and best available biodiversity information.

Development, Operation and Closure:

- Environmental management plans (EMP) receive the same degree of scrutiny as EIAs. EMPs can be classified as ‘international best practice’ and must cover the project’s entire life---cycle;
- Operators are required to develop and operationalise ongoing adaptive management plans, with the goal to steadily improve long-term environmental outcomes;
- Biodiversity offset strategies must be developed and operationalized when avoidance of impacts has been proven unfeasible.
- NPI/NNL forecast implementation: examples Black Mountain, Rio Tinto NPI protocol to help guide project journey towards NPI
- **Project closure:** needs active participation for internal and external stakeholders including local communities. Description of key points. Need to inform and manage expectations from stakeholders Guidance can be found – ICMM, *Planning for integrated mine closure toolkit* and *World Bank Towards Closure and Decommissioning of oil Fields and Mines*

Monitoring

Governments need to monitor each stage of the project development to ensure that constraints detailed in regulatory requirements are met and strategic planning implications are followed and where necessary addressed.