# ANNEX 5: Decision Support Tool – an initial outline

Introduction

In Section 6.1 *Areas to be excluded from prospecting and mining*, the Policy requires that a **Decision Support Tool** shall be used to identify and classify areas both in and outside protected areas and other areas with high value species or environmentally sensitive areas according to their sensitivity. This Tool will assist the Mineral Prospecting and Mining Rights Advisory Committee (MPMRAC) to determine whether exploration and mining should be allowed in a given area, based on the best available information.

A first iteration Decision Support Tool is described here, as the basis for further work and improvements as more information becomes available. The Decision Support Tool is needed to:

1. identify the exact location of a potential prospecting or mining site in relation to important attributes such as:
   * its exact location within a protected area
   * its exact location within a specific protected area management zone
   * its exact location within areas with high value species
   * its exact location within environmentally sensitive areas

noting that the scale of protected area maps, management zonation maps and areas to be excluded from prospecting and mining in this Policy is too large to allow accurate application of this Policy to specific sites; and similarly concerning other areas with high value species with known biodiversity attributes or environmentally sensitive areas that that have not yet been accurately mapped or contain information of a sensitive nature that should not become publicly accessible; and

1. enable further information that becomes available through research and surveys concerning biodiversity and habitat attributes inside and outside protected areas and environmentally sensitive areas can be used without requiring the maps in this Policy to be continuously updated.

Access to such a Decision Support Tool should not just be limited to the MPMRAC but should be institutionalised and made accessible to a wider range of stakeholders to help make decisions with regards to any kind of development in environmentally sensitive areas. The Decision Support Tool can be designed to provide access to different layers of information to different officials to e.g. ensure that the localities of rare, endangered or commercially valuable species and their habitats that are currently treated as restricted information by MEFT do not become more widely available than necessary for their protection. It can be noted that the mining cadastre of MIME already provides public information on protected areas or parts thereof that are withdrawn from prospecting and mining.

Design

Decision Support Tools can take many forms, including software applications, spreadsheets, or even simple checklists. They may use a variety of techniques, such as data visualization, statistical analysis, or machine learning algorithms and modelling to help users make sense of large amounts of data and identify patterns or trends that might be difficult to detect otherwise. The establishment of a Decision Support Tool is a process, which needs a dedicated person/team and budget that drives the buy-in, the establishment and maintenance of the tool.

There are still huge data gaps which needs to be filled. Therefore, a continuous effort needs to be made to drive data collection and analysis. One important layer missing would be the mapping of sensitive areas or habitats, areas with high value species and environmentally sensitive areas. Data which have not been mentioned in the Policy but would help to make decisions need to be collected as well, such as socio-economic, climate and climate change data.

Benchmarking

While considerable international benchmarking can be done and would be valuable to do, the system and products developed in neighbouring South Africa are both innovative, practical and readily applicable to Namibia. The South African National Biodiversity Institute (SANBI) has established a comprehensive online information system, the Biodiversity Advisor, which combines several different tools and datasets:

* SANBI Biodiversity advisor <https://biodiversityadvisor.sanbi.org/> Part of the advisor is the biodiversity GIS and the Land Use Decision Support tool LUDS <http://bgis.sanbi.org/> and <http://bgis.sanbi.org/LUDS/Home/About>
* SANBI has produced a national biodiversity priority map that would be very helpful if Namibia could also produce something similar <https://www.sanbi.org/wp-content/uploads/2018/04/mapping-biodiversity-priorities-web.pdf>

There are similar systems also in the USA based on a different methodology using latest technologies:

* Map of biodiversity importance for the US <https://habitatsuitabilitymodeling-natureserve.hub.arcgis.com/apps/c2858319d41e410aa4b36ff9fad6ced0/explore> and <https://www.natureserve.org/map-biodiversity-importance>

Way forward

The further refinement of the Decision Support Tool would be a big task and requires a dedicated budget and manpower to drive the development of such a tool. A tool like this would need major funding and a team of experts to establish it. The refinement of such a Decision Support Tool should be done in parallel to the implementation of this Policy. For a first level inhouse Decision Support Tool the vision should be:

* The Decision Support Tool will support the work of the MPMRAC
* Both MIME and MEFT will be providing a budget towards the refinement and maintenance of the Decision Support Tool
* The MEFT will be hosting and maintaining the Decision Support Tool in corporation with MIME
* The minimum requirements for such a tool is the ability to store, view and query relevant spatial data on a GIS platform as well as relevant documents, guidelines and reports.
* A task team/working group to be established, which should:
* Have the overall mandate of refining and maintaining the Decision Support Tool
* Identify the technology and software to be used for the refining of the Decision Support Tool
* Identify where and how the Decision Support Tool fits in the workflow of the MPMRAC
* Identify and collect relevant existing and available datasets, including documents, guidelines and reports, relating to areas qualifying to be excluded for mining
* Establish relationships with governmental and private sector data providers
* Driving the further refinement of the Decision Support Tool in terms of technology used, the closure of possible data gaps, and the initiation of further data analysis and modelling to improve the knowledge base and the decision-making process
* A panel of experts to be established with the mandate to review the tool and its data content in terms of data quality and usability and make recommendations for improvements

Important data sources are: Government Offices, Ministries and Agencies and in particular the National Statistic Agency (NSA), the Surveyor General and Directorate of Survey and Mapping, the Directorate of Land Reform, MEFT Directorate of Scientific Services, MEFT Department of Environmental Affairs and Forestry, MAFWLR Department of Water Affairs, Remote Sensing Centres, Non-Governmental Organizations (NGOs) such as the Namibia Chamber of Environment (NCE), NACSO members and working groups, specialised NGOs such as the Giraffe Conservation Foundation, Cheetah Conservation Foundation, Desert Lion Project, Desert Elephant Research Project, Elephant Human Relations Assistance etc. and academic and research institutions such as UNAM, NUST and SASCAL. Available datasets and websites in the public domain for Namibia are: Atlas of Namibia <https://atlasofnamibia.online/>, Environmental Information Service (EIS) <http://www.the-eis.com/>, Namibia biodiversity database <https://www.biodiversity.org.na/index.php>, National Spatial Data Infrastructure (NSDI) <https://nsdi.nsa.org.na/> and potentially others including global datasets relating to e.g. climate change.

In support of this process, all the shapefiles used in the production of maps for this Policy and mapped wildlife corridors from four Regions are provided at link and also in GIS ArcView form at link also serving as the first most basic iteration of what the Decision Support Tool could be developed from.