



**DEVELOPMENT
CORRIDORS
PARTNERSHIP**

IMPACT ASSESSMENT FOR CORRIDORS: FROM INFRASTRUCTURE TO DEVELOPMENT CORRIDORS

Edited by:
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The Development Corridors Partnership

The Development Corridors Partnership (DCP) is a research and capacity development initiative. It is a collaboration between institutions from China, Kenya, Tanzania and the UK. The main objective is to deliver effective research and capacity-building to help improve corridor planning and management. It aims to ensure that development corridor decision-making is based on sound scientific evidence and effective use of available planning tools and procedures, to ensure that risks are

avoided and opportunities exploited. The DCP comprises partners from the University of York, the University of Cambridge, London School of Economics, Sokoine University of Agriculture, the University of Nairobi, as well as the UN Environment Programme World Conservation Monitoring Centre (UNEP-WCMC), African Conservation Centre, the World Wide Fund for Nature (WWF), the Chinese Academy of Agricultural Sciences and the Chinese Academy of International Trade and Economic Cooperation (CAITEC).

DCP Partners:



For the purposes of this publication, DCP collaboration was extended to experts representing Netherlands Commission for Environmental Assessment, the Centre for Energy, Petroleum and Mineral Law and Policy at the University of Dundee, the University of Queensland, the Columbia Centre on Sustainable Investment, the GOBI

Framework for Sustainable Infrastructure Initiative (comprising the University of Oxford, University of Central Asia and the Independent Research Institute of Mongolia), The Biodiversity Consultancy, the Wildlife Institute of India, the Endangered Wildlife Trust and Ecotecnia Ingenieros Consultores SRL.

Expert Organisations:



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Foreword

In the course of a long and varied working life, I have been privileged to work with, or learn from, a stimulating panoply of individuals who are committed to contributing to the economic, social, and environmental development of all aspects of the United Nations Sustainable Development Goals.

Jon Hobbs and Diego Juffe-Bignoli are, thankfully, two of these individuals. I was delighted to learn that they had come together to produce, for the Development Corridors Partnership, a rich and stimulating collection of research reports, case studies and assessments relating to the array of efforts made under the rubric of 'development corridors'. They were determined to express the conviction that decisions made, primarily by governments, regarding the planning and building of Corridors, really must be informed by an evidence-based understanding of the consequences - positive or negative - of these decisions. And they have succeeded. But Jon Hobbs will never read these words. He was hospitalized after the bulk of the work was complete, and, to the deep sadness and regret of all who knew him, he passed away at the end of September, 2021.

Jon and Diego sought out and recruited a daunting array of researchers, scholars and stakeholders to shed light on the processes currently underlying the world of development corridors today. They certainly succeeded.

The work was initiated before the onset of the COVID-19 pandemic, and as governments turn to the formidable challenge of restoring

economic vitality without further damage to the climate, it becomes even more imperative that impact assessment be understood, embraced and improved. Jon and Diego have shown us the way forward for a journey which absolutely must be embarked upon.

They would be first to recognise that the Development Corridors Partnership as a whole must be commended for showing - in many different ways and places - that, not only is the need for impact assessment clear and present, but so are the skills and commitment of researchers, scholars and stakeholders. These are to be found in an impressive coming together of universities, civil society organizations and business groups, and communities.

All are part of an outstanding initiative, funded by the UK Research and Innovation Council, and managed by the UNEP-WCMC. This initiative has been embraced by some of the best minds that have been turned to the task of ensuring that - while we attempt to bring economic and social benefits to people, in line with the United Nations Sustainable Development Goals - we do not risk significant environmental and social costs, and thus actually undermine long-term development successes.

So, I urge you to read this book, and figure out how you might improve your own contribution to the challenges ahead. Jon and Diego have set out a case. It needs to be taken up, not set aside; acted on, not just talked about. It is in your hands.

John Harker

Chair of the Development Corridors Partnership Independent Advisory Board,
Nova Scotia, Canada.

Dedicated to the memory of Jon Hobbs
who was the architect and driving force of this book

Executive Summary

Driven by increasing globalisation, the development aspirations of nations, and the need to access resources, an infrastructure boom is impacting many regions of our planet. New infrastructure projects are traversing diverse landscapes over hundreds of kilometres, often crossing international borders and penetrating into remote areas previously unaffected by industrialisation and urbanisation. These large-scale projects, mostly spanning several regions in a same country, but often linear and transnational in nature, are generically called corridors. Depending on the nature and objectives, they can be transport, infrastructure, growth, resource or economic corridors.

The rapid development of corridors globally presents environmental planning professionals with numerous challenges. **The primary need is to ensure that decisions about these developments are informed by an evidence-based understanding of their consequences - both positive and negative.** This will enable infrastructure development to meet development needs without adversely impacting ecological systems or human welfare. Improving the quality of infrastructure policies, plans, programmes and projects, by ensuring they include the necessary environmental and social scrutiny, is urgently required now - and will be for the foreseeable future. This challenge is the unifying theme of this publication.

Using insights from Africa, Asia and South America, this sourcebook compiles 24 contributed papers written in 2021, covering many facets of the

opportunities and challenges presented by the rapidly growing number of infrastructure and corridor developments around the world. Prevailing planning practices are reviewed through case studies along with the efficacy of some of the available tools to conduct systematic and comprehensive impact assessments. The latter includes Strategic Environmental Impact Assessment (SEA) and Environmental Impact Assessment (EIA).

As the title suggests the underlying thesis of this publication is that, where they are justified, **there are significant benefits in ensuring that corridors that contain single purpose infrastructure developments (utility, infrastructure or transport) progress through a carefully planned sequential process of diversification and expansion to ensure the maximisation of benefits in full-blown 'development corridors'.** In this book, development corridors are therefore aspirational. They comprise areas identified as priorities for investment to catalyse economic growth and development. They should be developed with multiple stakeholders and social, economic and environmental interests and interdependencies in mind. With the integration of sustainability principles and appropriate environmental and social standards, development corridors could become true '(sustainable) development corridors'. They should be planned to maximise positive opportunities and minimise negative risks. Without this, today's short-term successes will become tomorrow's challenges and long-term human welfare and ecosystem integrity will be undermined.

Overview of contents

This book brings together a wide range of perspectives from experts, researchers, and practitioners around the world with the purpose to foster greater collaboration and increase our global understanding of corridors and their benefits and potential negative impacts. 13 of the 24 chapters are written by independent experts and researchers from Australia, Bolivia, Brazil, China, India, Kenya, Mongolia, South Africa, Tanzania, UK, and the USA. The book also includes 11 chapters containing material gathered by the Development Corridors Partnership, a programme of work led by UN Environment Programme World Conservation Monitoring Centre (UNEP-WCMC) and funded by the UK Government via their Global Challenges Research Fund.

The collection of papers in this sourcebook is divided into five sections. First an introductory section where we introduce some key terms and definitions that underpin this work ([Chapter 1](#)). We then explore some key principles and aspirations of corridors such as delivering the Sustainable Development Goals ([Chapter 2](#)), ensuring theory and practice align ([Chapter 3](#)), ensuring financial sustainability ([Chapter 4](#)), properly assessing environmental sensitivity ([Chapter 5](#)) respecting human

rights ([Chapter 6](#)), or maximising, co-benefits ([Chapter 7](#)).

In the next three sections, we present 15 case studies from three continents: Africa, Asia, and Latin America. These case studies explore key challenges and lessons learned from specific planned, ongoing, and already implemented developments. They are presented as individual stories that readers can explore.

The final and fifth section aims to summarise lessons learned from a 4-year research and capacity building programme specifically aiming to understand the key challenges and opportunities around corridors and that has been the major driving force of this work: The Development Corridors Partnership project (DCP). DCP is a collaborative partnership across UK, Kenya, Tanzania and China, funded by the UK Research and Innovation Global Challenges Research Fund (see [Chapter 23](#)).

The book finishes with an overview of the lessons learned from the contributed papers included in this book and develops ten principles for corridor planning and delivering a meaningful and comprehensive impact assessment ([Chapter 24](#)), which we summarise here as ten key messages.

Key messages

1

Corridors must seek to achieve positive sustainability outcomes:

The mindset underwriting environmental planning of most infrastructure developments has been to mitigate negative impacts. The planning of few existing corridors is based on their role in supporting a sustainability vision for a country or region in which they are situated. Corridor developments must therefore be based on sustainability principles and support progress towards national, regional and international sustainable development goals. A true development corridor will seek to do good, as well as to mitigate negative impacts.

2

Integrated and inter-disciplinary approaches are needed:

Corridor developments are extensive, complex, multifaceted features traversing many landscapes. They can bring about significant transformational change to physical, economic, social, and cultural systems, and serve as interconnecting features. Yet engagement in corridor planning is often constrained by limited disciplinary and institutional involvement, with projects often superimposed upon communities. Corridor developments need diverse expertise and experience in their planning and management, including local stakeholder knowledge, avoiding disciplinary, institutional, or sectoral silos, that can result in policy conflicts, contradictions, and inconsistencies.

3

Corridor proponents should clearly demonstrate consideration of alternatives:

Corridor options should not be limited to a preferred proposal favoured by an elite. Corridor developments must consider all feasible alternatives (including maintenance of the status quo and no corridor development) and make the risks and opportunities of each option explicit and transparent through meaningful consultation. An important requirement in all corridor planning is to justify the need for a wide choice of options and an explanation of the potential benefits it will bring and to whom, in comparison with the alternatives. Any necessary trade-offs and how any significant potential negative impacts will be effectively managed, and opportunities created must be explained.

4

Public participation and stakeholder engagement should be at the core of corridor planning:

Corridor planning frequently fails to include meaningful participation of all stakeholders. Corridors can profoundly affect the lives and rights of indigenous peoples and local communities, potentially for generations. A common failing is that the first opportunity for local stakeholders to engage arises only after all strategic decisions have already been made and the only option remaining is for them to react negatively to a fait accompli. The meaningful engagement of all stakeholders is necessary to ensure their role is more than reactive. The way corridors are viewed by different stakeholders must be identified, understood, and addressed. Corridor developments must ensure that all interested and affected people are provided with adequate information about a proposal and have meaningful ways to engage in decision-making processes from the outset of strategic planning.

5

Mainstreaming and tiering are fundamental for corridor success:

Corridor planning requires a tiered assessment process, ensuring that environmental and social issues are considered alongside financial and technical considerations from the start of strategic planning or programme development, right through to project specifics. Conceptual corridor planning is frequently dominated by technical and financial suitability criteria with environmental, social, cultural, and human rights sensitivity issues being considered, at best, as externalities, retrospectively, once issues and problems arise. Strategic planning is important because it is when the full range of options is still open for discussion. It also establishes the parameters that will frame and implement a corridor plan or programme. Environmental and social considerations (and the interactions between them) should be considered early in strategic decision-making alongside (and to inform) technical, financial, and economic considerations.

6

An iterative process is needed:

Corridors exist in dynamic environments and need to be responsive to changing circumstances and priorities. Planning must adjust as circumstances and available information changes. The process should identify, map, and engage all interested and affected stakeholders from the earliest stage of corridor planning and throughout the planning and management of the corridor. New concerns and evidence will likely emerge as a corridor development progresses. Corridor planning frequently places undue emphasis on the production of a report (Environmental Impact Report) and its influence on the decision to proceed. The process may not be so linear in nature. It may involve many adjustments and decisions as new evidence emerges and predictions improve. A good-quality report and recommendations is necessary, but they are dependent upon a comprehensive process of ongoing dialogue and engagement with all stakeholders.

7

Corridors must ensure effective use of available tools:

Many corridor environmental impact assessments fail to meet required international standards. Corridor planning and management should make systematic and adequate use of available impact assessment procedures, methods, techniques, and tools to ensure good-quality decisions. The available procedures discussed in this publication (notably Strategic Environmental Assessment and Environmental Impact Assessment) and their associated methods, tools and techniques should be used when appropriate to help ensure that a systematic process identifies all significant potential benefits and development outcomes, and that they outweigh the costs and risks to affected people and their livelihoods and environments. The objectivity and quality of corridor decisions are dependent upon the effective use of the available tools.

8

Plan corridors with resilience and adaptability in mind:

Prevention will always be better than cure in addressing the negative impacts of corridors, and this should be the priority. However, some circumstances dictate an inevitability of negative impacts. Corridors, therefore, need to be designed to be made resilient to anticipated changes and adaptation measures may be necessary as 'coping' mechanisms or to offset unavoidable impacts, such as the impacts caused by climate change. The suitability of measures will require ongoing monitoring and adaptation as needs arise.

9

Seek impact, influence, and implementation capacity:

The decision to proceed with a corridor is ultimately the responsibility of decision makers. They are usually the representatives of all stakeholders' interests and custodians of their natural resources. Any impact assessment report must provide adequate information to ensure sufficiently good-quality decisions. If they are to be effectively implement the recommendations provided. Attempts to improve the performance of planning and associated assessment processes of corridors must tackle the ways in which outcomes are shaped by political contexts and institutional capacities. Approaches to working on assessment processes should integrate political economy analyses and institutional capacity assessment from the outset and on an ongoing basis. Resulting insights should inform the design and implementation of interventions intended to improve planning practice.

10

Evolve from Infrastructure to Development Corridors:

The prospects for linear infrastructure projects to evolve into comprehensive development corridors are often left to chance and spontaneity. Infrastructure projects are often developed in isolation and in an incremental way. For infrastructure projects to progress and become true development corridors, the transition must be systematically sequenced into planning from the start. Assessments must include consideration of potential induced, secondary, synergistic, transboundary, and cumulative impacts likely to result from the corridor development. The progression from infrastructure to development corridors must be based on a systematic, comprehensive, and integrated assessment of the potential positive environmental, social and economic opportunities and the rigorous avoidance or management of negative impacts.

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African Case Studies



The Mtwara Development Corridor in Tanzania: Strategic Environmental Assessment of a Planned Corridor

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ABSTRACT

The Mtwara development corridor is a spatial development initiative proposed by the Southern African Development Community (SADC) and launched in 2004. The corridor includes southern Tanzania, northern Mozambique, northern and central Malawi, and eastern and northern Zambia. In Tanzania, it extends from the town of Mtwara on the western Indian Ocean coast to Mbamba Bay on the shore of Lake Nyasa/Malawi. The corridor is planned to encompass resource extraction, oil and gas exploration supported by new or improved infrastructure. Mtwara corridor is expected to unlock the development potential of a region that is rich in natural resources but has high levels of poverty. However, the same area is known for hosting globally significant species and ecosystems that also provide important benefits to local communities. We assess the current status of the Mtwara development corridor in Tanzania, document the future known plans for it, and review three Strategic Environmental Assessments (SEA) that aim to drive or influence this development and projects within it. Specifically, we assess whether these reports take full consideration of the risks associated with biodiversity and ecosystem services in the region, and we explore the role of the mitigation hierarchy framework or similar approaches to improve SEA outcomes. Then we reflect on what the SEA process has brought, and whether the products produced through it have had an influence in spatial planning in Mtwara development corridor area of influence. For the Mtwara corridor to reach its full potential, it is important to carry out an integrated and inclusive impact assessment process that can identify alternatives to manage the potential environmental and social risks of such developments.

8.1 Introduction

The Mtwara development corridor (Mtwara corridor thereafter) is a spatial development initiative first proposed by the Southern African Development Community (SADC) in 1992 and launched in 2004 as an agreement between the governments of Tanzania, Mozambique, Malawi and Zambia (Japan Development Institute 2009; Smith 2005). It includes portions of southern Tanzania, northern Mozambique, northern and central Malawi, and eastern and northern Zambia (Fig. 8.1).

The Mtwara corridor is often called the minerals or mineral-rich corridor in reference to its potential for large-scale resource extraction projects for coal, iron ore, uranium and nickel; a smaller artisanal mining for diamonds, gem stones and gold; as well as off-shore oil and gas exploration opportunities in the Indian ocean. In addition, planned and ongoing new or improved infrastructure would support these operations by connecting production and trade areas across countries and between borders, and most notably, the expansion of the Mtwara port as a major transoceanic trade point.

High levels of poverty characterise the territories where the Mtwara corridor is expected to

develop with the majority of the population relying on subsistence agriculture and wild harvesting and hunting (Japan Development Institute 2009; Kinshella 2014; World Wide Fund for Nature Tanzania 2016). In addition, the corridor contains a wealth of well-preserved natural ecosystems, including large areas of miombo woodland that is of global importance for biodiversity conservation, such as the Selous-Niassa transboundary wildlife corridor that connects Tanzania to Mozambique (Baldus and Hahn 2009); or the Nyasa/Malawi Lake system, a global freshwater biodiversity hotspot (Sayer, Palmer-Newton and Darwall 2019). Mtwara corridor proponents are expecting that the infrastructure development and resource extraction will bring much-needed socio-economic growth and improvements in the region. However, some of these developments are likely to cause negative impacts on biodiversity and ecosystem services that local people rely on. Consequently, in addition to impacts on nature, it could result in worse social outcomes (i.e. increased poverty of some marginalized groups) than before the development takes place.



Image credits: Diego Juffe Bignoli

Here, we assess the current status of the Mtwara development corridor in Tanzania, document the future known plans for it, and review three SEAs that aim to drive or frame this development and projects within it. Specifically, we assess whether these reports take full consideration of the risks associated with biodiversity and ecosystem services in the region. We explore the role of

the mitigation hierarchy framework or similar approaches to improve SEA outcomes for biodiversity, and we reflect on what the SEA process has brought and whether the products created through it have influenced spatial planning in the Mtwara corridor area of influence. Although the focus is on the Tanzanian part of the corridor, we identify transboundary links when appropriate.

8.2 The Mtwara development corridor in Tanzania

The Mtwara development corridor concept in Tanzania has evolved since its launch in 2004. The two earliest studies involving the Mtwara corridor, a prefeasibility and environmental baseline study for the Ruvuma river interface (Smith 2005) and the Tanzania Mtwara development corridor study report led by the Japan Development Institute (2009), show this evolution.

The 2005 prefeasibility study was developed through a collaboration of three initiatives: the GTZ Wildlife Programme in Tanzania, the Mtwara Development Corridor Secretariat (hosted by the Spatial Development Initiatives Programme of the South African Department of Trade and Industry⁷³ but now not operative), and the Forestry and Beekeeping Division of the Ministry of Natural Resources and Tourism of Tanzania. The study focused on the Mtwara corridor as a platform to develop new tourism and community-based natural resources management (CBNRM) concepts - through community-owned wildlife management areas (WMA) and village land forest reserves - in the Selous-Niassa Transfrontier Conservation Area (see Section 8.3 for more detail on this conservation effort). It states that the Mtwara corridor's aim is "to identify and package projects aimed at attracting private sector investment" and, specifically, "potential tourism routes and associated projects, which are consistent with the National Tourism Master Plan" (Smith 2005). The study proposed an

"Alternative conservation and land management concept," which aimed to integrate tourism and WMA, and outlines a series of land use designations and plans to develop the region as an anchor destination that would bring economic development (Smith 2005). However, it concludes "it is difficult to see the Ruvuma River as playing the role of anchor destination" mainly due to lack of reliable infrastructure at the time and concludes the focus on developing WMAs was the most viable option. The Japan Development Institute report (Japan Development Institute 2009), which was completed only four years after the prefeasibility study, focuses on the Mtwara corridor potential as a development corridor promoting industrial and private sector investment targeting agriculture, forestry, and mining development. The report provides an overview of the projects planned ([Annex 1](#)) and pays special attention to the Mtwara port development as an importing and exporting gateway of trade goods for the corridor.

Five years later, in 2014, the Mtwara corridor was listed in the Transport and Trade System Development Master Plan for Tanzania as one of "a number of major projects that would considerably change the spatial structure of the national economy" (Ministry of Transport and Japan International Cooperation Agency 2014) and described as "Intensive resource-based development". Tanzania's Integrated Industrial Strategy 2020-

73 This programme was created in 1995 by the South African Government.

2025 planned to develop a Mtwara Special Economic Zone (SEZ) to further stimulate investment to support industrial development in the area (Ministry of Industry and Trade of Tanzania 2011), although there is no available evidence to confirm these plans have been implemented. Linked to these reports, at least three assessments that are labelled as SEAs cover, partially or totally, the Mtwara corridor area. These which will be reviewed in Section 8.4.

Based on the existing assessment and plans in Tanzania, the geographical extent of the corridor stretches from the town of Mtwara on the western Indian Ocean coast to Mbamba Bay on the shore of Lake Nyasa/Malawi, covering the regions of Ruvuma and Mtwara in their entirety, and Lindi and Njombe partially

(Fig. 8.1). The anchor projects for the Mtwara corridor are mineral resources available in southwest Tanzania and northern Malawi, and offshore oil and gas in the Indian Ocean coastal zone of southern Tanzania and northern Mozambique. The key anchor projects are the proposed Mchuchuma iron ore and Liganga coal mining activities in west Tanzania, which link to the Mtwara city and port through the recently upgraded Mamba Bay-Mtwara road, and the proposed associated railway. The Unity bridge is another key infrastructure component, and has been in place since mid-2010, connecting Tanzania and Mozambique; the Mamba Bay port and the road play a similar role in connecting with Malawi.



Figure 8.1 Proposed area of influence for The Mtwara development corridor – this proposed area of influence is based upon the known administrative boundaries of regions and districts were planned, or existing projects are located



Over the decades, many projects and activities have been attributed to the Mtwara corridor in planning documents and existing SEA reports. However, with the notable exception of the upgrade of the Mtwara-Mbamba bay road and the Unity bridge, very few of these plans seem to have been implemented on the ground ([Annex 1](#)). There is a general lack of information on the actual progress of the Mtwara corridor, and the status of many projects within the corridor is unknown or they have remained in a conceptual planning phase for many years. Despite the lack of evidence of implementation, the Transport and Trade System Development Master Plan for Tanzania (Ministry of Transport and Japan International Cooperation Agency 2014) predicts an increase in demand of 402 per cent on the roads and railways in the Mtwara region. Many major offshore oil and gas exploration efforts are already underway, for example, in Mnazi Bay and the offshore Lindi region (Richmond 2016; Bofin, Pedersen and Jacob 2020), and the need to expand the port in the city of Mtwara. On the railway, the Transport

and Trade System Development Master Plan of 2014 notes that “Stanbic Bank (Tanzania) and the International Commercial Bank of China (ICBC) secured syndicated financing worth USD 3 billion for Mchuchuma Iron Ore and Liganga Coal mining projects in Ludewa District”, which “may accelerate the construction of the line” as an essential development to support these mining operations. Active mining licenses exist for graphite, limestone and sand in the east part of the corridor; Uranium in the southern part of the Selous UN Educational, Scientific and Cultural Organization World Heritage Site; and coal, iron ore, and gold in the west part of the corridor near lake Nyasa/Malawi (Ministry of Energy and Minerals of Tanzania 2021). Although transparency is a fundamental principle of best practice in impact assessment processes, there are no publicly available project-specific impact assessments of these projects. Nevertheless, a prefeasibility study on the Mtwara-Songea-Mbamba Bay railway and studies on Liganga and Mchuchuma are likely to have been completed.⁷⁴

74 <https://allafrica.com/stories/202010230567.html> [Accessed 26/01/2021]

8.3 Biodiversity and ecosystem services within the Mtwara corridor

The Mtwara corridor covers a vast area and has a natural and cultural heritage of national and global significance, falling within what has been called the Greater Rovuma Landscape by the World Wide Fund for Nature (WWF). The Ruvuma landscape covers 280,000km² (an area larger than the UK) of southern Tanzania and northern Mozambique (Fig. 8.2), and has been a global priority for conservation action for WWF for the past 15 years (Harrison *et al.* 2009). Key habitats

include coastal forests, mangroves, coral reefs, miombo woodlands, freshwater systems, woodlands and important wildlife corridors connecting the Selous Game Reserve World Heritage Site in Tanzania and the Nyasa National Reserve in Mozambique. This is one of the largest areas in Africa that still retains large portions of intact habitats hosting globally threatened species such as elephants, lions, cheetahs, hyenas and unique, endemic freshwater fish and plants.

Figure 8.2 Key conservation areas in the area of influence for the Mtwara development corridor in Tanzania



Sources: UN Environment Programme World Conservation Monitoring Centre and International Union for Conservation of Nature (2019) for protected areas; Riggio and Caro (2017) for wildlife corridors, World Wide Fund for Nature (WWF) Tanzania for the Mtwara development corridor's (Mtwara corridor) main roads and WWF Ruvuma priority landscape.

WWF has developed a programme of work (World Wide Fund for Nature 2021), and a climate vulnerability assessment and adaptation strategy for the Ruvuma priority landscape (World Wide Fund for Nature Tanzania 2014). This has also been accompanied by efforts

to take a scenario development approach for integrated spatial planning (Murphree *et al.* 2014) and Reduce Emissions from Deforestation and Forest Degradation in developing countries (REDD+) planning (Runsten *et al.* 2013; World Wide Fund for Nature Tanzania 2015). In addition,

the southern part of the Tanzanian portion of the corridor is a key area for ecological connectivity, linking the Selous Game Reserve and other protected areas in southern Tanzania with the Niassa National Reserve in northern Mozambique (Fig. 8.2). This forms the Ruvuma's Selous-Niassa Transfrontier Conservation Area with a history spanning 20 years.⁷⁵

This extent of wildlife and natural resources contrasts with a relatively low population density, which has been growing, but at a slower rate than other regions of Tanzania (Interconsult Ltd. 2013). As explained in Section 8.2, subsistence agriculture, logging and mining are prevalent activities that have increased over the past years, resulting in numerous and fragmented local threats to biodiversity, including extensive elephant poaching

across the Ruvuma landscape (Zafra-Calvo *et al.* 2018). This mix has created some conflicts between conservation priorities and development priorities (Kinshella 2014; Bluwstein and Lund 2018) and recently extreme Islamic groups in northern Mozambique, attracted by potential revenues from such developments, are threatening political stability and local livelihoods in the region (Estelle and Darden 2021). In this socioeconomic context, this globally important ecological system is likely to be negatively impacted by insensitive developments. However, integrated planning and systematic assessment of impacts to identify alternatives and mitigation measures can make a difference to how this corridor progresses.

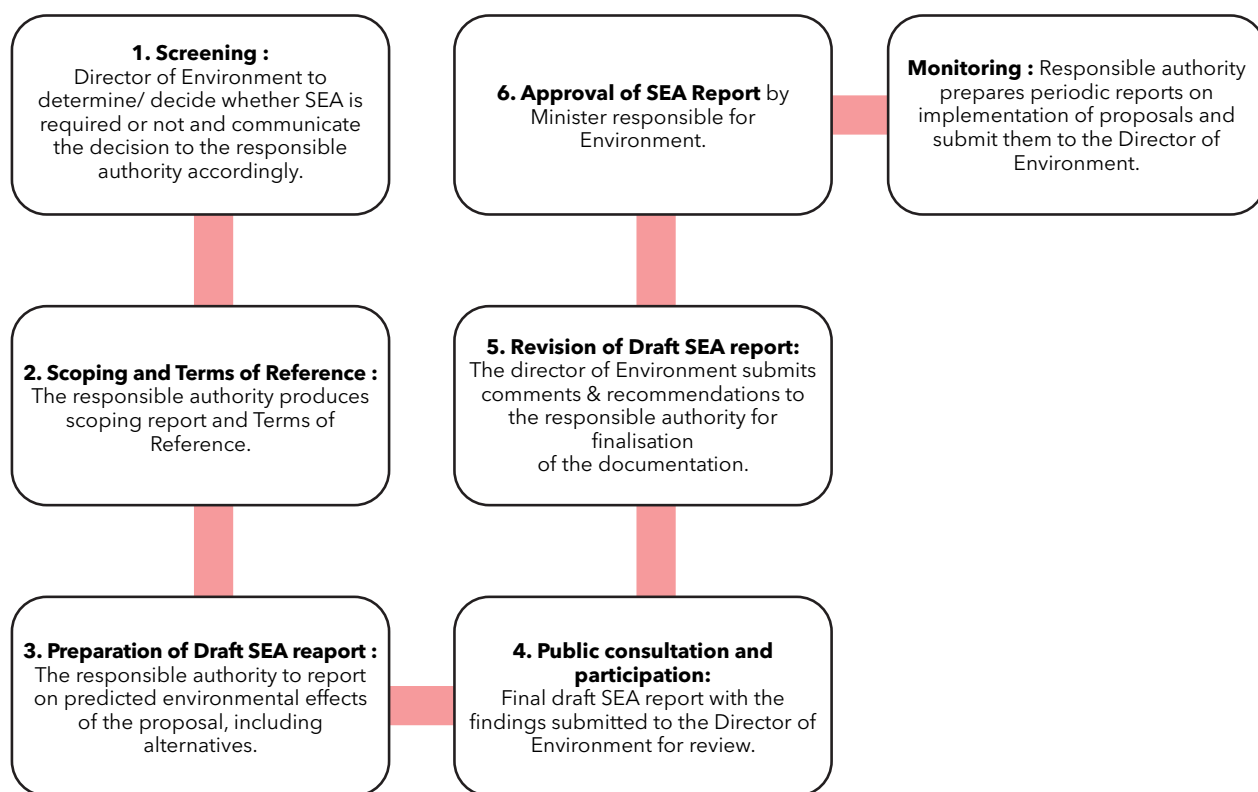
8.4 Review of existing impact assessments

In Tanzania, the legal frameworks for Environmental Impact Assessment (EIA) and SEA are provided by the 2004 Environmental Management Act. The central authority for EIA in Tanzania is the National Environment Management Council (NEMC). NEMC's main obligations include raising awareness and capacity-building in environmental management, screening for environmental risk of projects of national interest and coordinating stakeholders to assess potential impacts, approve the conditions under which projects may go ahead, propose mitigation measures and monitor performance (Netherlands Commission for Environmental Assessment 2013). Specifically, since 2007, Tanzania has produced National Guidelines for Strategic Environmental Assessment (Tanzania Vice President's Office 2017), which sets the scope for SEA, defines SEA principles, describes the key steps

in SEA processes, which includes an approval stage and subsequent monitoring process (Fig. 8.3) and establishes responsibility to undertake an SEA. The latter lies with government agencies or departments when "it is found necessary at the commencement of a policy, bill, regulation, strategy, programme or plan" and "if there are important environmental effects of a policy, bill, regulation, strategy, plan or programme" (Tanzania Vice President's Office 2017). The guidelines include questions that are relevant for corridor initiatives, such as: does the proposal set the framework for future development? Are there components that are likely to have cumulative or long-term consequences for the environment (e.g. trade, industrial diversification, technology development, crop diversification)? Or is the proposal likely to have significant effects on the environment?

⁷⁵ The history of this important transboundary conservation areas is well described by (Noe 2015; Baldus and Hahn 2009). Social issues are explored by (Bluwstein and Lund 2018).

Figure 8.3 Key steps in a SEA process in Tanzania according to the National Guidelines for Strategic Environmental Assessment



Source: Tanzania Vice President's Office (2017).

In the Mtwara corridor, no impact assessment (SEA) of the corridor concept per se, as an initiative for regional economic development, has been undertaken to date. However, three Strategic Environmental Assessments that are relevant to the planned corridor area of influence are available: the SEA for the Transport and Trade Systems Development Plan of Tanzania (Inter-consult Ltd. 2013), the draft SEA for the Mtwara region (Institute of

Resource Assessment 2015), and the SEA Ruvuma region (Ruvuma Regional Secretariat 2016). We review these three reports from the perspective of their coverage of biodiversity and ecosystem services: It is important to note that these three SEAs were conducted before the national SEA guidelines were developed and, therefore, might not have followed the best practice outlined in such guidelines.

8.5 National sectoral SEA for the Transport and Trade Systems Development Plan of Tanzania (2013)

Tanzania's Ministry of Transport, financed by the Japan International Cooperation Agency, coordinated this national-scale sectoral SEA. It serves as a foundational document of

the Transport and Trade System Development Master Plan for Tanzania (Ministry of Transport and Japan International Cooperation Agency 2014), whose purpose was to "streamline

the countrywide freight transport system; and develop necessary transport and trade systems". The objectives of this SEA were to identify: (i) likely significant environmental and social impacts associated with the implementation of the Master Plan; (ii) the appropriate mitigation measures to prevent, minimize or avoid these; and (iii) to define monitoring tools to ensure that the proposed mitigation measures are implemented and identify any unforeseen adverse (negative) impacts, so that remedial action can be taken.

Environmental protection objectives are defined according to each of the international agreements and national policies and acts identified in the report. The report states that the transport infrastructure agencies and authorities will be required to comply with environmental protection objectives outlined in the list of relevant policies, legislations, strategies, conventions and treaties, and provides objectives for each of them. For example, with regards to the Wildlife Policy of Tanzania, the objectives are to avoid the destruction of wet-

land ecosystems, avoid destruction of important biodiversity areas and protect wildlife. The SEA then assesses the biodiversity impacts that are likely to happen qualitatively, specifically loss of biodiversity, destruction of wildlife corridors, climate change and landscape degradation. To do this, it chooses earmarked projects. The only project relevant to the Mtwara corridor included in this SEA is the Mbinga-Mbamba Bay road.

The state of the environment study or baseline provides an overview of protected areas, key ecosystems, and ecological features of Tanzania, including appendices with a list of protected areas and number of species found and the status of water, soil and cultural assets. There is, however, no systematic identification and characterization of species and ecosystem and no determination of conservation priorities on a large scale. Nevertheless, the report estimates the proposed plan may lead to "increased exploitation of forest products and wildlife, hence loss of biodiversity".



Image credits: Rob Marchant

To assess these impacts and their significance, a stakeholder consultation for the earmarked areas was conducted. Consultation meetings took place in eight of the 31 regions (Dar es Salaam, Pwani, Tanga, Ruvuma, Mbeya, Rukwa, Mwanza and Kigoma), where over 128 people from local government authorities, regional administrative secretaries, the Tanzania Port Authority and Tanzania Roads Agency (see Appendix 4 in the SEA) took part. In relation to the Mtwara corridor, only 10 stakeholders for the Ruvuma region were consulted in these meetings; mostly government officials and consultants. Still, no non-governmental organizations (NGOs) or local communities seem to have been involved. Moreover, there is no evidence of consultation from stakeholders from the Mtwara region in this SEA report.

The SEAs provide a study of alternatives using an Analytic Hierarchy Process technique. Participants were asked whether they predicted secondary, cumulative, synergistic, short, medium and long-term permanent, temporary, positive or negative effects of a given intervention, and to assess its significance, although

no justification was documented as to how the values or the scores were chosen. For the only Mtwara corridor project included, the project concludes that: (i) the increased exploitation of forest and wildlife is likely to result in negative, indirect (secondary), and cumulative impacts of permanent, and long-term, medium significance; (ii) the destruction of natural habitat of terrestrial and aquatic flora and fauna is likely to result in negative, direct, cumulative impact, of permanent, and short-term, high significance; and (iii) the destruction of wildlife corridors is likely to result in negative, indirect (secondary) impacts, with permanent and long-term medium significance. It then defines the likely consequences of these impacts and proposes specific mitigation measures to manage these (Table 8.1). To implement the mitigation measures proposed, it states that collaboration will be required from the Division of Environment in the Vice President's Office (VCPO); Ministry of Natural Resource and Tourism; and the Ministry of Water "to enforce compliance with environmental protection objectives".

Table 8.1 Types of impacts identified for the Mbinga-Mbamba Bay road in the Mtwara corridor, its potential consequences, and proposed mitigation measures, as described in the SEA

| Type of impact | Description | Mitigation measures proposed |
|---|--|--|
| Loss of biodiversity | Exploitation of forest products and wildlife, resulting in the destruction of natural habitats for terrestrial and aquatic flora and fauna: fragmentation and loss of critical ecosystems linkages, overexploitation of some species, agricultural expansion Specific impact on Lake Nyasa swamps | <ul style="list-style-type: none"> » Avoid all environmentally sensitive areas, protected areas such as game reserves, national parks, forest reserves and ecologically important natural vegetation » Enforce existing legislation and the introduction of economic instruments such as charging taxes to mitigate the likely increased exploitation of forest and wildlife products |
| Destruction of wildlife/ ecological corridors | Loss of habitat, isolation, or reserves impact on tourism Specific impact on Mwambesi Game Controlled area and Selous Game Reserve | <ul style="list-style-type: none"> » Application of speed control measures, such as speed humps and rumble strips, and warning signboards within wildlife corridors to mitigate the destruction of wildlife corridors |
| Climate change | Changes in species ranges, migratory patterns, increase of pests and diseases | <ul style="list-style-type: none"> » Ensure that planning of road construction projects considers climate change impacts (e.g. the design of bridges consider extreme flood events) » Increase capacity of carbon sinks by promoting tree planting (reforestation) |
| Landscape degradation | Degradation of unique landscapes with scientific, ecologic and aesthetic values | <ul style="list-style-type: none"> » Take a precautionary approach during construction to avoid/minimize landscape degradation » Discourage opening of new areas for extraction of construction materials by prioritizing the use of existing borrow pits and quarry sites » Identify and document all vulnerable landscapes and unique landscapes with scientific, ecological and aesthetic values so that they can be avoided during construction » Restore and stabilize disturbed landscape areas immediately after construction |

During implementation of the master plan, the SEA states, “infrastructure transport agency/authorities will collaborate with these institutions to identify and document environmentally sensitive and protected areas likely to be affected, and devise a mechanism for avoiding or minimizing adverse impacts on these areas”.

Finally, the SEA proposes 17 years of monitoring 2013–2030 efforts, listing several variables and the responsible agencies (e.g. data on types and number of unique, rare, threatened and/or endangered species of flora and

fauna and data coming from Tanzania National Parks Authority, Wildlife Conservation Society, Tanzania Wildlife Research Institute, and Local Government Authorities, among others). The SEA was submitted on 3 December 2013 and approved on 10 February 2014 by the Ministry of Transport of the VCPO, with no suggested revisions and a final note: “We hope the ministry will ensure all mitigation and enhancement measures will be adhered to during implementation of the master plan.”

8.6 Regional SEA for the Mtwara and Ruvuma development plans

This section provides an overview of two SEAs conducted to support the regional plans for Mtwara (Institute of Resource Assessment 2015) and Ruvuma (Ruvuma Regional Secretariat 2016) regions, both of which fall entirely in the Mtwara corridor and form the core area to be developed under that initiative. The focus is on identifying specific mentions of the Mtwara corridor, assessing potential impacts on biodiversity and ecosystem services, and mitigation measures proposed.

WWF Tanzania funded these two SEAs. The Mtwara SEA was conducted by the Institute of Resource Assessment, University of Dar es Salaam, while the Ruvuma Regional secretariat prepared the Ruvuma SEA. Their development emerges from terms of reference that were developed to conduct the assessments (World Wide Fund for Nature 2021). Therefore, the resulting SEAs were conducted following the same frameworks, which is reflected in having a very similar report structure, SEA objectives, similar environmental goals and the same approach to impact assessment and similar mitigation measures. The SEA aimed to provide a list and rationale for the proposed projects in the region, assess the likely positive and negative environmental and socioeconomic impacts of these on an established baseline, and determine how these projects will affect the

achievement of the environmental and economic objectives.

The stakeholder analysis included five main groups of actors to be consulted: local government authorities, sector ministries, government parastatal organizations, NGOs and private sector organizations, and defines their roles and responsibilities in SEA process. Stakeholder participation was ensured through key informants and stakeholders’ group or individual meetings and workshops. There were three consultation phases from January to October 2015. The workshops were conducted jointly for the Ruvuma and Mtwara regions. For example, the first national workshop on SEA for the Mtwara and Ruvuma Regional Strategic Plans conducted in February 2005 brought together 44 participants from 20 institutions. The issues identified included economic potential in the Ruvuma landscape, availability of electricity, environmental pollution, scaling down of activities and water use. Others include financial constraints, land acquisition, corporate social responsibility, responsible institutions to implement projects, prioritization of activities and transboundary issues.

The report proposes alternative scenarios for development, but none of these have a biodiversity or ecosystem services focus, nor do

they clearly relate to the goals identified in the previous sections. The significance of the expected impacts of each scenario (on the achievement of the objectives of the SEA) are examined in a qualitative way (Table 8.2). It considers, for example, that there will be an *Insignificant negative change* in biodiversity from Development and Intensification of agro-industries and settlement planning and infrastructure development but *Significant negative change* from expansion and improvement of agriculture and the development of the energy and water infrastructure sectors (Table 8.2).

Regarding the Mtwara development corridor, both SEAs have the development target of “Infrastructure development along

the Mtwara Development Corridor by 2025” but provide no detail on what this may entail nor of the specific impacts it may cause. Of the 39 original development targets, the SEA recommends cancelling 3, downscaling 5, and proposes five new projects, some of which are significant in scale, such as development of tourist infrastructure (e.g. hotels, ecotourism trails, roads, recreation bands), rehabilitation of antiquities (e.g., Mikindani former slave trade market and the Newala German colonial period administrative building). 25 out of the final 40 development targets (62 per cent) relate to the Mtwara corridor either as specific projects identified in [Annex 1](#) or indirectly related projects ([Annex 2](#)).

Table 8.2 Overview of Mtwara and Ruvuma regional SEAs focusing on relevant biodiversity objectives, impact significance of proposed alternatives, and proposed mitigation measures as described in the SEA. The proposed mitigation measures reflect the level of detail found in the SEAs. Details of all proposed projects and proposed modifications in scale are in Annex 2

| Regional SEA | SEA objectives | Biodiversity baseline study | Relevant biodiversity goal or objective | Impact significance of alternatives | Proposed mitigation measures |
|--------------|--|---|--|---|---|
| Mtwara | <ul style="list-style-type: none"> » Present relevant environmental baseline information » Identify, describe and assess the likely significant environmental effects of the plan » Propose measures to avoid, reduce and/or offset any potentially significant adverse effects and, where appropriate, to enhance any potential positive effects from the plan | No specific characterization of biodiversity risks. Scant mention of biodiversity in sections on fisheries, forest resources, and tourism Map showing locations, no species lists | Objective C: protect/restore/enhance regional biodiversity | Agricultural land expansion: slightly negative Agro-industries expansion: no impact Infrastructure development: slightly negative Tourism development: moderately positive | No specific biodiversity sections. Proposed measures focus on mitigating impacts on wetland only, follow EIA regulations and reduce the scale of some proposed projects |
| Ruvuma | <ul style="list-style-type: none"> » Outline and describe the measures envisaged for monitoring any significant effects identified by the SEA » Demonstrate that the plan has been developed in line with SEA regulations | Qualitative and superficial description of protected areas and wildlife corridors; map showing locations, no species lists | Goal 2: conserve and enhance Ruvuma Region biodiversity and geodiversity | Agricultural land expansion: significant negative change Agro-industries expansion: insignificant negative change Infrastructure development: insignificant negative change Energy and water infrastructure development: significant negative change | Specific biodiversity section; proposed measures focus on mitigating impacts on wetlands mostly, following EIA regulations, reducing scale of some proposed projects, avoiding introduction of alien, exotic, or invasive species (manually remove and destroy them wherever found), and minimizing unnecessary land use/cover change |

conclusion is that although the proposed programmes will bring positive and negative environmental impacts, they will “boost economic growth, increase jobs and improve livelihoods of the people”. The recommendations include taking action to improve governance issues, undertake long-term planning processes, adopt appropriate planning tools, undertake measures to implement activities aimed at enhancing economic benefits, establish measures to address environmental implications, reduce negative social effects, and incorporate uncertainty planning. The Mtwara SEAs were submitted to each of the regional authorities. Both SEAs would then be submitted to the Vice President’s Office.

8.6.1 Conclusions from the SEA review

A national sectoral SEA, such as the one reviewed here, would be expected to have an influence on regional programmes and plans, especially the two regional development SEAs that aim to assess the likely positive and negative environmental and socioeconomic impacts of proposed projects and how these will affect the achievement of the environmental and economic objectives for the region. However, the national SEA report reviewed here is not cited nor mentioned in any of the two regional development SEAs. This perhaps reveals a lack of transfer of information between national and regional governmental bodies.

In all three SEAs, there was a clearly described process where stakeholder consultations and analyses of alternatives seemed appropriate, in line with the national SEA guidelines. Similarly, although the proposed Mbinga-Mbamba Bay road was the only Mtwara corridor project included in the national plan, the railway, which is likely to be built adjacent to the road, and 16 out of 23 of the projects linked to the corridor are mentioned in either of the regional SEAs (see [Annex 1](#)). However, while the processes seemed to follow best practice,

some fundamental issues are found with the biodiversity baseline assessment, which then negatively influences the technical outputs of the process. Moreover, it was not clear whether the processes had been inclusive enough, that there had been a meaningful involvement of all relevant actors, and that an appropriate range of alternatives for development had been considered in depth (see [Chapters 20](#) and [22](#) to explore how a good SEA process could have avoided serious negative impacts to nature and people).

The three reports do not meaningfully assess the implications of the proposed development for biodiversity and ecosystem services. The baseline studies and the assessment of impacts carried out were not comprehensive enough to meaningfully assess whether it was possible to meet the objectives set without compromising ecological integrity. Without an adequate baseline, it is difficult to effectively assess the likely impacts of the proposed alternatives, even at a regional scale, which would be an appropriate SEA scale of assessment. Consequently, the change expected from proposed projects involved in the corridor programme remains generic and vague. There cannot be a systematic assessment of the potential impacts of each project on biodiversity and ecosystem services. As a result of a poor baseline and superficial assessment of impacts, the mitigation measures proposed do not address the potential impacts of the projects listed ([Tables 8.1](#) and [8.2](#)). Moreover, without an appropriate baseline, it will be difficult to monitor progress on the effectiveness of the proposed mitigation actions and do adaptive management to resolve any issues. In conclusion, although the objectives of the SEAs state the intention to avoid, minimize and offset impacts, the report does not provide sufficient detail on how that can be achieved.

8.7 Conclusions

The Mtwara development corridor has been in planning since at least 2004 and is considered a key initiative in Tanzania's national development priorities. However, although some projects have been, and are being implemented, to date, it does not seem to have been developed as a cohesive development programme coordinated by a central body such as is the case with other similar developments in East Africa (i.e. the Southern Agricultural Growth Corridor of Tanzania Centre, [Chapter 9](#) and the Lamu Port South Sudan and Ethiopia transport corridor [LAPSSET] Authority, [Chapter 11](#)). The main constraint to fully develop the corridor as a coordinated initiative seems to have been the lack of financial resources to support some of the key anchor projects and government development priorities. Nevertheless, the main road that would act as the spine of the corridor from the east in Mtwara city to the west in the Mbamba Bay lake port has been fully upgraded, and the railway that will likely go alongside it is being planned. The bridges from Dar es Salaam to Mtwara, including the Mkapa bridge over the Rufiji River and the connection of Mtwara region with northern Mozambique via the Unity Bridge have been built and upgraded.

To date, a SEA for the Mtwara corridor has not been undertaken, and other attempts to undertake SEAs that should have had some influence on Mtwara corridor developments have been lacking in several key requirements. To understand how the potential impacts on biodiversity and ecosystem services from the Mtwara corridor have been assessed to date and what mitigation measures have been proposed, we reviewed three SEAs that the national SEA Tanzania (Inter-consult Ltd. 2013), a SEA for the Mtwara region (Institute of Resource Assessment 2015) and a SEA for the Ruvuma region (Ruvuma Regional Secretariat 2016). We conclude that the SEA does not establish a systematic biodiversity baseline and, as a result, it does not fully consider the biodiversity risks of

this initiative. More importantly, the authors could not determine whether these SEAs have been implemented or have influenced any decision-making in the area of influence of the Mtwara corridor. However, the Mtwara corridor is mentioned in several government strategies before carrying out regional SEAs.

The mitigation hierarchy (see [Chapter 4](#)) should be used as a guiding framework to explore some of these issues. The mitigation hierarchy is not explicitly mentioned, but mitigation hierarchy actions such as avoid, minimize and offset are proposed. However, none of the SEAs undertake a complete application of this framework through a systematic assessment of impacts and mitigation options beyond the project scale. The mitigation hierarchy could be applied to the SEA to determine the actual biodiversity outcomes pursued by these developments transparently and coherently, considering indirect, cumulative and transboundary impacts at a scale larger than an EIA scope of assessment. As such, it could support the development of different scenarios towards a future with, for example, the achievement of no net loss or net gain for biodiversity. The explicit application of the mitigation hierarchy at a regional/corridor level has not been undertaken to date. Still, there is an extensive experience on applying it at a project level (Ekstrom, Bennun and Mitchell 2015) and some attempts to apply it at larger scales (Tulloch et al. 2019; Bigard et al. 2020).

Table 8.3 provides a first attempt towards defining how the mitigation hierarchy should be used to assess and manage impacts for biodiversity in the context of a corridor SEA. It explores the application of the steps reactively and proactively. Reactive refers to keeping the status quo and developing mitigation measures and monitoring procedures to manage predicted impacts. Proactive, as a more forward-looking practice, refers to determining the specific actions needed to achieve predefined goals for the corridor. It is important to note that

in every action, accountability and responsibility, and the financial resources available to carry out these actions need to be determined.

In this sense, perhaps a biodiversity action plan that is specific for a corridor as an annex to the SEA could be appropriate.

Table 8.3 Preliminary recommendations to apply the mitigation hierarchy for a corridor-level SEA

| Step | Description | Application to SEAs - from reactive to proactive |
|-----------------|--|---|
| Avoid | Prevent damaging actions before they take place | <p>Reactive: assess potential direct, indirect and cumulative impacts of the proposed development on the achievement of SEA objectives</p> <p>Re-design to avoid significant large-scale risks and potential impacts</p> <p>Proactive: in addition, define conservation goals at a local, national and global scale and align those with SEA planning and project EIA implementation Design development compatible with those goals</p> |
| Minimize | Reduce the severity of impacts | <p>Reactive: propose mitigation measures specific for each project. Follow on to project EIAs implementation and monitoring</p> <p>Proactive: In addition, identify mitigation measures across the area of influence to meet SEA goals. Feed into EIAs process</p> |
| Restore | Actively enhance recovery to the pre-project state | <p>Reactive: identify areas that need to be restored after each project has been completed</p> <p>Proactive: in addition, identify areas for restoration in the area of influence of the corridor to enhance regional ecological connectivity and recovery</p> |
| Offset | Compensate measurably for impacts | <p>Reactive: determine ecological compensation mechanisms</p> <p>Quantify likely outcomes for biodiversity at the short, medium, and long term</p> <p>Proactive: in addition, seek positive outcomes for biodiversity beyond just compensation</p> |

More importantly, while the focus on this study has been biodiversity impact mitigation, this is only one of the pieces of the impact assessment puzzle. Impact assessment should consider the whole environment, which includes the socio-economic context and impacts on local people (see [Chapter 1](#)). What is needed at a corridor level is integrated and interdisciplinary corridor-wide planning across regions, considering the positive and negative impacts of the proposed development scenarios, plans or programmes on

the region's environmental, social and economic assets.

Ad hoc developments without reference to a framework that guides those developments to a sustainable future for the region will lead to environmental degradation and social unrest. Therefore, it seems imperative that a collaborative, inclusive and comprehensive SEA is explicitly conducted for the Mtwara corridor. The national SEA guidelines already serve as a guide to

complete such an assessment, following best international practice. WWF has played a central role in developing the SEA guidelines and developing SEA capacity in the country (World Wide Fund for Nature Tanzania 2018). The Tanzanian and neighbouring Kenyan SEA

guidelines resulted from training courses supported over six years by the Swedish International Development Agency, delivered by Gothenburg University, Sweden. Specifically, WWF's Regional Sustainable Investment Programme in Tanzania, over the past several years, has raised awareness and knowledge on the use and value of the application of SEA guidelines to government officials from six zones of the country, which covered 20 out of 25 regions. A total of 180 government officials (district and regional environmental officers) gained

knowledge on the application and the use of the guidelines. This is a very important step towards the institutionalization of quality SEA implementation within Tanzania. The aim was that the trained government officers foster SEA guidelines, create awareness, and assist government authorities, SEA practitioners and other stakeholders to design, conduct and implement SEA processes on policies, regulations, strategies, plans and programmes that are likely to impact the management, conservation and enhancement of the environment and sustainable management of natural resources. The network of officials trained now serve as a resource to conduct SEAs that will assess the development alternatives for the Mtwara corridor to be designed and implemented as an actual development corridor.



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Annex 1 Project list for the Mtwara development corridor 2009-2014

| Project | Resource | Region | Location | Type | Status | Original Source | T&T SEA (2014) | Mtwara SEA (2015) | Ruvuma SEA (2016) |
|---------------------------|-------------|---------|---|-----------|--|-----------------|----------------|-------------------|-------------------|
| Liganga | Iron | Ruvuma | Liganga, Tanzania near Nyassa lake | New | Active licenses but status unclear (misalignment between investors and government) | JDI 2009 | | x | |
| Mchuchuma | Coal | Ruvuma | Mchuchuma, Tanzania lake Nyasa/Malawi | New | | JDI 2009 | | x | |
| Nachingwea | Nickel | Lindi | Nachingwea, Lindi | New | | JDI 2009 | | | |
| Potential mineral reserve | Uranium | Ruvuma | Mkuju River | New | | JDI 2009 | | | |
| Mnazi-Bay Gas concessions | Natural gas | Mtwra | Mnazi Bay | New | Operational | JDI 2009 | | x | |
| Methanol plant | Methanol | Unknown | Unknown | New | Unknown | JDI 2009 | | | |
| Potential mineral reserve | Phosphate | Mbeya | Mbeya, between Nyasa/Malawi and Rukwa lakes | New | Unknown | JDI 2009 | | | |
| Nitrogen fertilizer plant | Fertilizer | Mtwara | Mtwara industrial area | New | Unknown | JDI 2009 | | x | |
| Cement plant | Cement | Mtwara | Mikindani | New | Operational | JDI 2009 | | x | |
| Mtwara port | Transport | Mtwra | Mtwara | Expansion | Unknown | JDI 2009 | x | x | |

| | | | | | | | | | |
|---|-----------|---------------|---------------------------------|---------------|---------|--|---|---|---|
| LNG plant | Gas | Mtwra | Mtwara port | New | Unknown | JDI 2009 | | x | |
| Mtwara-Son-gea-Mbamba Bay railway | Transport | Mtwra, Ruvuma | Mtwara-Son-gea-Mbamba Bay | New | Planned | JDI 2009 | | x | x |
| Road | Transport | Mtwra, Ruvuma | Mtwara to Mamba bay | Up-grade | Done | JDI 2009 | | x | |
| Lindi-Mtwara power link | Energy | Mtwara, Lindi | Lindi to Mtwara | Up-grade | Unknown | JDI 2009 | | x | |
| Road and railways upgrades | Transport | Mtwra | Mtwara, Ruvuma, Morogoro, Lindi | New/up-grades | Ongoing | Transport & Trade SEA (2013) | x | x | x |
| Mtwara airport | Transport | Mtwra | Mtwara | Up-grade | Unknown | Transport and Trade SEA (2013) | x | x | |
| The international airport in Son-gea Municipality | Transport | Ruvuma | | New | Ongoing | Ruvuma SEA (2016) | | | x |
| Harbour at Nyassa lake | Transport | Ruvuma | Mbamba Bay in Nyassa District | Up-grade | Unknown | Ruvuma SEA (2016) | | | x |
| Mineral exploration | Mining | Ruvuma | Not specified | Expansion | Ongoing | Ruvuma SEA (2016) | | | x |
| Energy development | Energy | Ruvuma | Not specified | Expansion | Ongoing | Ruvuma SEA (2016) | | | x |
| Water-related infrastructure | Energy | Ruvuma | Not specified | Expansion | Unknown | Ruvuma SEA (2016) | | | x |
| Small-/medium-scale gold | Mining | Lindi | Namungo, Ruangwa | Expansion | Ongoing | Tanzania mining cadastre portal (MEM 2021) | | | |
| Small-/medium-scale gypsum | Mining | Lindi | Kilwa | Expansion | Ongoing | Tanzania mining cadastre portal (MEM 2021) | | | |

Annex 2 Projects under Mtwara and Ruvuma regional SEAs and proposed changes to original targets

| SEA | Theme | Original development target | Change proposed | The modified SEA development target |
|---------------|--|--|------------------------|---|
| Ruvuma region | Small- and large-scale agriculture | Expansion of irrigated land from the current 10,266ha to 39,943ha by 2025, including development areas of over 2,000ha within the Ruhuhu river delta at Lituhi in Nyasa District | No significant changes | Expansion of irrigated land from 10,266ha to 25,943ha by 2025; intensification of maize farming within current development areas, including expansion of maize storage facilities, adding value to the crop, and improving crop marketing by 2025 |
| Ruvuma region | Small and large-scale agriculture | Construction of 8 new cattle dips tanks and rehabilitation of 40 existing dip tanks in all districts. | Downscale | Improve livestock industry by the construction of 8 dip tanks and rehabilitation of 40 dip tanks in five districts |
| Ruvuma region | Small- and large-Scale Agriculture | Establishment of a total of 118 small livestock ranches in all districts | No significant changes | establishment of 118 small ranches in five districts by 2025 |
| Ruvuma region | Small- and large-scale agriculture | Establishment of 26,012ha of pastureland in all districts | No significant changes | No change proposed |
| Ruvuma region | Small- and large-scale agriculture | Expansion of fish fingerling farms from the existing 3 to 7 farms | No significant changes | improve protein intake by the expansion of fish fingerling farms from existing 3 to 7, at least one in each district by 2025 |
| Ruvuma region | Agro-processing industries | Development of two beef processing industries | Cancellation | Recommends not to do this project because it will not be viable given the little availability of animals to feed the industry |
| Ruvuma region | Agro-processing industries | Development of one fish processing industry through fish capture and farming | Cancellation | Recommends not to do this project because it will not be viable given the little availability of animals to feed the industry |
| Ruvuma region | Agro-processing industries | Revamp Songea tobacco processing industry | Cancellation | Recommends not to do this project because it is not environmentally sustainable |
| Ruvuma region | Agro-Processing Industries | Development of small-scale horticulture processing industries in all districts | No significant changes | development of agricultural small-scale processing industries through intensification horticulture gardens and improvement of packaging and marketing in all districts by 2025 |
| Ruvuma region | Settlements and Infrastructure Development | Construction of 4000km tarmac roads network | No significant changes | Construction of 400 km tarmac roads network. |
| Ruvuma region | Settlements and Infrastructure Development | Construction of international airport in Songea Municipality | No significant changes | No change proposed |
| Ruvuma region | Settlements and Infrastructure Development | Construction of harbour at Mbamba Bay in Nyasa District | No significant changes | No change proposed |
| Ruvuma region | Settlements and Infrastructure Development | Demarcation of mining and mineral exploration areas in all districts | No significant changes | Demarcation of mining and mineral exploitation areas in all districts by 2025 |
| Ruvuma region | Settlements and Infrastructure Development | Acquisition of 1000ha of the land bank (EPZA) for investment | No significant changes | acquiring and planning for 1000 ha of land-bank for investment (EPZA) by 2025 |
| Ruvuma region | Settlements and Infrastructure Development | Infrastructure development along the Mtwara development corridor | No significant changes | infrastructure development along the Mtwara development corridor by 2025 |
| Ruvuma region | Settlements and Infrastructure Development | Construction of Mtwara-Ruvuma Railway Line (1,000km) | No significant changes | No change proposed |

| | | | | |
|---------------|--|---|------------------------|--|
| Ruvuma region | Energy Sector Development | Power generation (200MW) from solar energy; 100MW from hydropower; and 400MW from coal by 2025 | Downscale | Development of 75MW from hydropower on the Ruhuhu River and 400MW from coal by 2025; and reduction of charcoal usage from 92.67 per cent to 30 per cent using alternative energy sources (coal, hydropower and gas) by 2025. |
| Ruvuma region | Energy Sector Development | Rural electrification targeting 509 villages using solar, hydropower, and coal sources by 2025 | No significant changes | No change proposed |
| Ruvuma region | Energy Sector Development | Expansion of urban electrification from 30 per cent to 90 per cent in all districts | No significant changes | Expansion of urban electricity power supply from 30-90 per cent by 2025 |
| Ruvuma region | Energy Sector Development | Reduction of charcoal usage from 92.67 per cent to 30 per cent by the adoption of alternative sources of energy i.e. gas and electricity, by 2025 | No significant changes | No change proposed |
| Ruvuma region | Tourism Based on natural resource Base | Construction of tourist hotels in all districts. | No significant changes | No change proposed |
| Ruvuma region | Tourism Based on natural resource Base | Construction of beaches and camping sites along Lake Nyasa/Malawi at Mbamba Bay in Nyasa District | No significant changes | No change proposed |
| Ruvuma region | Water-Related Infrastructure | Expansion of urban water supply from current 67 per cent to 100 per cent and waste water disposal in all district HQs by 2025 | No significant changes | No change proposed |
| Ruvuma region | Water-Related Infrastructure | Expansion of rural water supply from current 59 per cent to 90 per cent by 2025 | No significant changes | No change proposed |
| Ruvuma region | Water-Related Infrastructure | Construction of 5,000,000m ³ dam for Songea Urban water supply | Downscale | Construction of about 2,500,000 m ³ dam for Songea urban water supply by 2025. |
| Mtwara region | Small and Large-Scale Agriculture | Construction of eight paddy irrigation schemes (2,743ha) | Downscale | Development of three (3) paddy irrigation schemes i.e. Ndanda, Kitere and Muhurunga (2,296 ha) by 2025. |
| Mtwara region | Small and Large-Scale Agriculture | Development of cassava plantations in Mtwara Rural and Newala districts (5,873 ha) | No significant changes | Expansion of cassava plantation (5,873 ha) in Mtwara Rural and Newala districts by 2025. |
| Mtwara region | Small and Large-Scale Agriculture | Expansion of Nangaramo ranch (8,000 ha) for improved cattle breeds | Downscale | Expansion of Nangaramo ranch (1,825 ha) and stocking rate (50,000 improved animal breeds), including provision of energy, storage and waste management facilities by 2025. |
| Mtwara region | Small and Large-Scale Agriculture | Establishment cashew plantations in all six districts (2,000,000 trees per years) | No significant changes | Expansion of cashew plantation (100,000 ha) by replacement of old trees in all six districts by 2025. |
| Mtwara region | Settlements and Infrastructure Development | Planning for a 7,000-acre settlement at Msijute village | No significant changes | Development of a 7,000 acre settlement at Msijute by 2025. |
| Mtwara region | Settlements and Infrastructure Development | Construction of Mtwara international airport (runway about 3.5km and weight of plane 160 tons) in Mtwara Municipality | No significant changes | No change proposed |
| Mtwara region | Settlements and Infrastructure Development | Expansion of Mtwara Port (2,694.24ha). | No significant changes | No change proposed |
| Mtwara region | Settlements and Infrastructure Development | Establishment of a Regional Referral Hospital at Mitengo (400 acres) | No significant changes | Upgrading/rehabilitation of 400 acre health facility (Regional referral hospital) at Mitengo. |
| Mtwara region | Settlements and Infrastructure Development | Rehabilitation and construction of roads connecting all districts (230km) | No significant changes | |

| | | | | |
|---------------|--|--|------------------------|---|
| Mtwara region | Settlements and Infrastructure Development | Infrastructural development along the Mtwara development corridor | No significant changes | Infrastructure development along the Mtwara development corridor by 2025 |
| Mtwara region | Energy Sector Development | Oil and gas energy production and associated projects | No significant changes | |
| Mtwara region | Water-Related Infrastructure | Construction of water infrastructures drawing water from Ruvuma river for Mtwara municipality | No significant changes | |
| Mtwara region | Water-Related Infrastructure | Construction of water infrastructure for water supply (100,000,000 l) from Ruvuma river for Mtwara and Mikindani Municipality | No significant changes | Improvement of the water supply of water (100,000m ³ /day) to Mtwara- Mikindani Municipality from Ruvuma river by 2025.. |
| Mtwara region | Water-Related Infrastructure | Rehabilitation of approx 50,000m ³ dam at Nangaramo ranch | No significant changes | Rehabilitation of approximately 50,000 m ³ dam at Nangaramo ranch by 2025. |
| Mtwara region | Agro-processing industries | Establishment of fish processing facilities in the region to be associated with protection of fishing grounds, provision of modern fishing equipment/gear, and enforcement of fishing policy, rules and regulations by 2025 | New project | New project |
| Mtwara region | Agro-processing industries | Construction of additional (250,000 tons) cashew nut processing facilities by 2025 | New project | New project |
| Mtwara region | Agro-processing industries | Construction of 8 milk collection points and one processing factory in Mtwara MC | New project | New project |
| Mtwara region | Tourism industry | Development of tourist infrastructure (hotels, ecotourism trails, roads, recreation bandas), rehabilitation of antiquities (e.g. Mikindani late slave trade market and the Newala late Germany colonial administration building), preparation of Mtwara tourism guide map, and publicize the tourism attractions by 2025 | New project | New project |