



**DEVELOPMENT  
CORRIDORS  
PARTNERSHIP**

# **IMPACT ASSESSMENT FOR CORRIDORS: FROM INFRASTRUCTURE TO DEVELOPMENT CORRIDORS**

Edited by:  
Jonathan Hobbs and Diego Juffe Bignoli  
**2022**

# 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:



This publication was made possible through funding provided by:



## Disclaimer

The views expressed in this publication are solely those of the authors and do not express the views of UNEP-WCMC or the Development Corridors Partnership. Any errors are the responsibility of the authors. Copyright of the respective chapters rests with the authors and re-use or reproduction requires the authors' prior permission. This book is based on work conducted by the authors in 2021.

## Citation:

### **This publication should be cited as:**

The Development Corridors Partnership (2022). *Impact Assessment for Corridors: From Infrastructure to Development Corridors*. Hobbs, J. and Juffe-Bignoli, D. (eds.). Cambridge: The Development Corridors Partnership.

### **Example of individual chapter citation:**

Gannon, K. (2022) Achieving the Sustainable Development Goals through Integrated approaches to Development Corridor Planning. In: *The Development Corridors Partnership (2022). Impact Assessment for Corridors: From Infrastructure to Development Corridor*. Hobbs, J. and Juffe-Bignoli, D. (eds.). Cambridge: The Development Corridors Partnership.

## Acknowledgements

This report would not have been possible without the hard work and invaluable support of the UNEP-WCMC DCP team: Amayaa Wijesinghe (Assistant editor and design coordination), Neil Burgess, Tanya Payne, Camilla Blasi-Foglietti, Cecilia Antonini, Aisha Niazi (editorial support and design), and Chris Hawksworth, Julia Wentworth, and Lisen Runsten (project management).

## Image Credits

Many embedded images in this report have been sourced through Shutterstock licensing. Any differing sources are named in the image credits.

# 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.

# CONTENTS

<b>FOREWORD.....</b>	<b>5</b>
----------------------	----------

<b>EXECUTIVE SUMMARY.....</b>	<b>7</b>
-------------------------------	----------

<b>INTRODUCTION .....</b>	<b>19</b>
---------------------------	-----------

## **1. Context and Definitions.....20**

1.1 Why this publication? .....	20
1.2 Drivers of infrastructure growth .....	21
1.3 Defining infrastructure.....	22
1.4 Defining corridors.....	23
1.5 Conclusion .....	38
Acknowledgements .....	39
References.....	39

## **2. Achieving the Sustainable Development Goals through Integrated Approaches to Development Corridor Planning .....40**

2.1 Introduction .....	40
2.2 Domesticating the SDGs in Kenya and Tanzania .....	42
2.3 Delivering the SDGs in Development Corridors .....	43
2.4 Development synergies and trade-offs in development corridors .....	44
2.5 Delivering the SDGs through corridors: An integrated governance challenge.....	47
2.6 A way forward through Strategic Environmental Assessment? .....	50
Acknowledgements .....	51
References.....	51

## **3. Tackling the EIA Impact Gap: Addressing Political Economy Realities to Bring Actual Practice Closer to Best Practice.....53**

3.1 Introduction .....	53
3.2 EIA processes - best practice versus actual practice.....	54
3.3 Political realities and EIA performance.....	60
3.4 Towards more impactful EIA processes: dealing with political context head-on .....	64
3.5 Conclusion .....	68
Acknowledgements.....	70
References.....	70

<b>4.</b>	<b>The Role of Lender Safeguards in Addressing Biodiversity Risks Associated with Large-scale Infrastructure Projects.....</b>	<b>74</b>
	4.1 Lender safeguards for biodiversity .....	75
	4.2 Challenges in applying lender safeguards.....	78
	4.3 Conclusions .....	83
	References.....	83
<b>5.</b>	<b>Environmental Sensitivity Mapping for Corridor Planning .....</b>	<b>85</b>
	5.1 Introduction .....	86
	5.2 Defining and differentiating sensitivity.....	88
	5.3 Moving beyond a binary vision of sensitivity.....	90
	5.4 Strengthening impact assessments.....	91
	5.5 Connecting impact assessments with other policies at the landscape level .....	92
	5.6 Conclusion .....	94
	Acknowledgements.....	94
	References.....	95
<b>6.</b>	<b>Putting Social Issues on the Infrastructure Agenda: Getting to a Rights-based Approach to Corridor Development.....</b>	<b>97</b>
	6.1 Introduction .....	98
	6.2 Key challenges in putting social issues on the infrastructure corridor agenda .....	99
	6.3 What is different about a corridor?.....	105
	6.4 Conclusion .....	107
	6.5 Recommendations .....	109
	Acknowledgements.....	110
	References.....	110
<b>7.</b>	<b>Accounting for Sustainable Development Co-benefits: Insights from Local Experiences with Climate Resilience Interventions .....</b>	<b>113</b>
	7.1 The concept of co-benefits .....	115
	7.2 Insights from climate resilience: integrating co-benefit appraisal into planning and decision-making processes .....	116
	7.3 Examples of co-benefit appraisals in projects relevant for the development corridor context.....	119
	7.4 Conclusions .....	124
	Acknowledgements .....	126
	References .....	127

## **AFRICAN CASE STUDIES ..... 129**

### **8. The Mtwara Development Corridor in Tanzania: Strategic Environmental Assessment of a Planned Corridor..... 130**

8.1	Introduction .....	131
8.2	The Mtwara development corridor in Tanzania .....	132
8.3	Biodiversity and ecosystem services within the Mtwara corridor .....	135
8.4	Review of existing impact assessments .....	136
8.5	National sectoral SEA for the Transport and Trade Systems Development Plan of Tanzania (2013) .....	137
8.6	Regional SEA for the Mtwara and Ruvuma development plans .....	141
8.7	Conclusions .....	144
	Acknowledgements .....	146
	References .....	147

### **9. Managing the Environmental and Social Impacts of Agricultural Transformation: Southern Agricultural Growth Corridor of Tanzania..... 153**

9.1	Introduction .....	154
9.2	Key players and stakeholders .....	155
9.3	Impact assessment in Tanzania .....	156
9.4	Environmental impact assessment .....	157
9.5	Strategic environmental assessment .....	159
9.6	Inclusive Green Growth Tool .....	161
9.7	Discussion and recommendations .....	162
	References .....	164

### **10. The Importance of Building Climate Resilience into Environmental Assessment Processes: The Case for the Southern Agricultural Growth Corridor of Tanzania..... 166**

10.1	Introduction .....	167
10.2	Current climate change adaptation measures in SAGCOT .....	168
10.3	Proposed methodology for a strategic climate change adaptation plan for SAGCOT.....	169
10.4	Conclusions .....	174
	Acknowledgements .....	175
	References .....	175

<b>11.</b>	<b>Public Participation in the Environmental Impact Assessment Process for Development Corridors in Kenya.....</b>	<b>176</b>
11.1	Introduction .....	177
11.2	The SGR and LAPSET corridors.....	178
11.3	The environmental and social contexts .....	178
11.4	The Environmental Impact Assessment framework.....	180
11.5	The EIA process.....	180
11.6	EIA and development projects.....	182
11.7	The study.....	183
11.8	Issues identified .....	184
11.9	Comparative EIA public participation process analysis .....	185
11.10	Stakeholder participation in the EIA for the corridor projects .....	188
11.11	Determinants of stakeholder participation in EIA.....	189
11.12	Stakeholder attitudes towards the EIA for the corridors .....	190
11.13	Conclusion and recommendations .....	191
	Acknowledgements .....	193
	References .....	193
<b>12.</b>	<b>Exploring the Potential of Scenario Planning for More Effective Environmental Assessments: Standard Gauge Railway Development Corridor, Kenya .....</b>	<b>200</b>
12.1	Introduction .....	201
12.2	Brief history of a flagship infrastructure project shrouded in controversy .....	202
12.3	Method.....	204
12.4	Results and discussion .....	208
12.5	Environmental impacts.....	211
12.6	Economic impacts.....	214
12.7	Social impacts.....	215
12.8	Conclusions: scenarios as tool for strategy development in EIAs and SEAs.....	219
	References .....	220
<b>13.</b>	<b>Community Engagement in Corridor Planning and Implementation in Kenya .....</b>	<b>229</b>
13.1	Introduction .....	229
13.2	National regulations on community engagement in Kenya .....	231
13.3	Case study: LAPSET .....	233
13.4	Case study: SGR .....	235



13.5	Conclusions .....	237
	Acknowledgements .....	238
	References.....	239

**14. Guidelines on Mitigating the Negative Impacts on Biodiversity of Road, Rail and Power Corridors: South African Experiences.....240**

14.1	Infrastructure development in South Africa.....	241
14.2	Legal framework for addressing the environmental and social impacts caused by development corridors.....	242
14.3	Implementing and enforcing the mitigation hierarchy .....	245
14.4	Tools and solutions to assess and manage environmental impacts.....	246
14.5	Conclusions .....	248
	Acknowledgements.....	249
	References.....	249

**15. Lessons Learned from the Maputo Development Corridor: An Environmental and Social Perspective .....255**

15.1	Introduction .....	255
15.2	Problem statement.....	259
15.3	Linkages with environmental and social environmental assessment in planning and management of corridors .....	260
15.4	Conclusion .....	264
	Acknowledgements.....	265
	References.....	265

**ASIAN CASE STUDIES.....267**

**16. Environmental Safeguards for the Belt and Road Initiative: Current Status and Future Prospects.....268**

16.1	Belt and Road Initiative: scale and scope .....	268
16.2	Environmental impact of infrastructure development .....	270
16.3	Environmental impact of BRI .....	271
16.4	Environmental impact-related risks of BRI projects .....	273
16.5	Environmental safeguards for BRI.....	274
16.6	MDB safeguards as a benchmark .....	275
16.7	Assessing BRI safeguards .....	276
16.8	The way forward.....	278
	Acknowledgements .....	282
	References.....	282

**17. Sensitive Planning and Design of Transportation Corridors: Vital Elements for Protecting India's Wildlife .....286**

17.1 Introduction ..... 286

17.2 Conservation challenges associated with transportation corridors traversing natural landscapes ..... 287

17.3 Environmental legislation for regulating transportation projects in India ..... 288

17.4 Structural mitigation measures for connecting fragmented habitats: prospects and challenges ..... 289

17.5 Structural mitigation measures applied to transportation projects in India ..... 289

17.6 Relevance of SEA in the planning of multiple linear corridors to ..... 295

17.7 Recommendations ..... 296

Acknowledgements ..... 297

References..... 298

**18. The Mekong River Corridor: A Critical Test for EIA/SEA Effectiveness .....300**

18.1 Introduction ..... 301

18.2 The Mekong river ..... 302

18.3 Development pressures ..... 303

18.4 Governance ..... 305

18.5 The Greater Mekong Sub Region (GMS) ..... 306

18.6 The Mekong River Commission (MRC)..... 306

18.7 The Lower Mekong Initiative ..... 310

18.8 The Lancang-Mekong Cooperation ..... 311

18.9 Review of hydropower developments ..... 311

18.10 Environmental planning and management..... 312

18.11 Conclusion ..... 315

18.12 Upper Mekong ..... 317

18.13 Lower Mekong ..... 320

18.14 The Mekong Delta ..... 327

Acknowledgements ..... 328

References..... 328

<b>19. The Belt and Road Initiative in Mongolia: Infrastructure Development and Impact Assessment .....</b>	<b>331</b>
19.1 Introduction: the China-Mongolia-Russia corridor overview.....	332
19.2 The China-Mongolia-Russia corridor .....	334
19.3 The Mongolian Steppe Road Programme.....	335
19.4 Mongolia and the Belt and Road Programme .....	336
19.5 Impact assessment in Mongolia: the legal context.....	337
19.6 Effectiveness of impact assessment policies and procedures .....	341
19.7 Impact assessment in planning and management of corridors.....	343
19.8 Key recommendations for Central Asia .....	343
Acknowledgements.....	344
References .....	344

## **LATIN AMERICAN CASE STUDIES.....347**

<b>20. Carajás Corridor in Brazil: Could a SEA have Reconciled Shared-use Infrastructure &amp; Environmental Protection? .....</b>	<b>348</b>
20.1 Historical background and current status of shared use of the Carajás corridor.....	349
20.2 Long-term social and environmental implications of a pro-economic development agenda.....	351
20.3 Could a SEA have reconciled shared-use and environmental protection in Carajás?.....	353
20.4 Conclusions .....	358
Acknowledgements.....	359
References.....	359

<b>21. Lessons Learned from SEAs of Road Infrastructure Developments in Bolivia: Santa Cruz-Puerto Suarez Corridor .....</b>	<b>361</b>
21.1 Background and context.....	361
21.2 Characterization of the corridor development area.....	362
21.3 From EIA to SEA .....	364
21.4 The SEA process.....	365
21.5 Results of the implementation of the SEA .....	367
21.6 Lessons learned.....	367
Acknowledgements.....	368
References.....	368

**22. Strategic Environmental Assessment for a Sustainable Mining Corridor: Addressing the Social and Environmental Risks of Tailings Dam Disasters after Mariana and Brumadinho .....369**

22.1	Introduction .....	370
22.2	Background .....	371
22.3	The Mariana and Brumadinho TD disasters: losses and reactions .....	372
22.4	The EIA in Mariana and Brumadinho: failures in the social and environmental protection and evolving laws .....	376
22.5	Approaches of the SEA for iron ore in Minas Gerais .....	379
22.6	Conclusion and policy implications.....	381
	References.....	382

**LESSONS LEARNED ..... 385**

**23. Lessons learned from a corridor focused research and capacity-building programme .....386**

23.1	Introduction .....	386
23.2	Lessons learned.....	387
23.3	Conclusion .....	400
	Acknowledgements.....	401
	References.....	401

**24. Principles for development corridor planning .....402**

**Authors Profiles.....407**



# Lessons Learned



# Lessons learned from a corridor focused research and capacity-building programme

Molly R.C. Brown,<sup>1</sup> Lisen Runsten,<sup>1</sup> Diego Juffe Bignoli,<sup>1,2</sup> Amayaa Wijesinghe,<sup>1</sup> Tanya Payne,<sup>1</sup> Han Meng<sup>3</sup>, Rob Marchant,<sup>4</sup> Jessica P.R. Thorn,<sup>4</sup> Daniel O. Olago,<sup>5</sup> Catherine C. Sang,<sup>5,6</sup> Pantaleo K.T. Munishi,<sup>7</sup> Japhet J. Kashaigili,<sup>7</sup> Lucy Waruingi,<sup>8</sup> Christine Tam,<sup>9</sup> Jonathan Hobbs<sup>10</sup> and Neil D. Burgess<sup>1</sup>

<sup>1</sup>UN Environment Programme World Conservation Monitoring Centre, Cambridge, UK

<sup>2</sup>Durrell Institute of Conservation and Ecology, University of Kent, Canterbury, UK

<sup>3</sup>WCMC Beijing, China

<sup>4</sup>York Institute for Tropical Ecosystems, Department of Environment and Geography, University of York, Heslington, York, UK

<sup>5</sup>Institute for Climate Change and Adaptation, University of Nairobi, Nairobi, Kenya

<sup>6</sup>Environmental Monitoring, Planning and Management Department, University of Eldoret, Kenya

<sup>7</sup>Sokoine University of Agriculture, College of Forestry, Wildlife and Tourism, Department of Ecosystems and Conservation, Morogoro, Tanzania

<sup>8</sup>African Conservation Centre, Nairobi, Kenya

<sup>9</sup>Independent Advisor to the Development Corridors Partnership project

<sup>10</sup>Senior Advisor, Development Corridors Partnership, Cambridge, UK

## 23.1 Introduction

The urgent need to improve impact assessments to safeguard the environmental and social well-being of human development along corridors has been considered in 23 case studies in this publication. The next chapter, [Chapter 24](#), provides key recommendations and principles that the authors of this publication have identified as key principles for

corridor planning, design, implementation and management.

In this chapter, experiences and lessons learned during the establishment and management of the Development Corridors Partnership<sup>185</sup> hereafter 'DCP', are shared. This complements the practical nature of



this publication through relaying the challenges and experiences of carrying out research and capacity-building within a diverse team to ultimately improve decision-making in corridors.

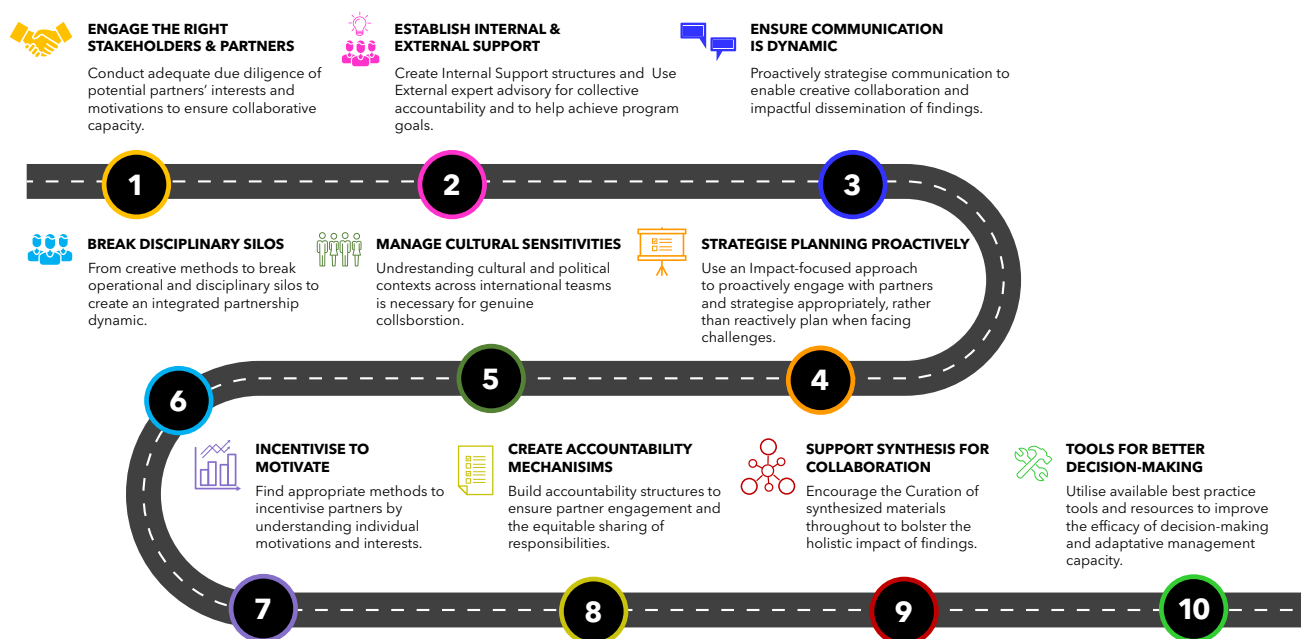
In many cases, the project management tools used in the development of the DCP broadly echo the fundamental needs of corridor planning and management. These include visioning (long-term capacity-building and collaboration), integrated planning and interdisciplinary collaborations (spanning biophysical and socioeconomic disciplines), impact tracking (internal and external impact monitoring), evidence basis (robust scientific evidence), ethics (internal and external ethical considerations), local leadership (local partners and delivery teams) and outcomes orientation (impact-focused systems). These tools will

help practitioners to develop the approaches necessary for more sustainable practices in development corridors, as well as programmes of advice and support.

The lessons learnt by the DCP, shown in Fig. 23.1, provide unique insights into managing a pioneering multidisciplinary partnership, which traversed the learning curve of moving to a largely remote operation during the COVID-19 pandemic. The main lessons to improve the DCP's management centre around the needs for proactive, rather than reactive planning, and better internal and external communication to ensure improved collaboration and outcomes. These lessons were found to be essential for effective project management, and they reflect the fundamental barriers found in impact assessment processes.

## 23.2 Lessons learned

Figure 23.2 Summary roadmap of nine key lessons learnt by the Development Corridors Partnership. These lessons are based on collective experiences from across partners in Kenya, Tanzania, China and the UK, working to improve development corridor decision-making and have broad applicability to all international partnership processes.



## Why are lessons learned from the Development Corridors Partnership useful?

The DCP has been a UN Environment Programme World Conservation Monitoring Centre-led research and development programme, awarded approximately £4.2 million by the Global Challenges Research Fund, running from 2017-2021. The project adopted a research and capacity-building approach with national partners in Kenya, Tanzania, China and the UK, focusing efforts on building capacity among the DCP's own researchers and, importantly, extending this to communities affected by corridors and corridor decision-making stakeholders.

The programme considered how corridors in Kenya and Tanzania in the past, present and future have or could be designed and implemented to deliver more sustainable, inclusive, and resilient economic growth. This approach provided a new platform to increase knowledge-sharing and collaboration for sustainable development. By conducting semi-structured interviews with members from each of the global DCP teams, the introspective lessons learned from both individual and collective experiences have been synthesised here. Now, these lessons learned can be applied to corridors universally, as they extend beyond the confines of specific corridor projects and are applicable broadly to other international partnerships.

Guided by recommendations contained in an earlier scoping report and business plan prepared by Adam Smith International (2015) and funded by the UK Department for International Development, the DCP was formed in 2017, building on previous long-standing relationships between institutions in the UK, Kenya, Tanzania and China. Varied expertise and disciplinary backgrounds were brought together by the coordinating partner, UNEP-WCMC, to work in collaboration to understand the linkages between the biophysical, economic and social impacts of development corridors. Importantly, the DCP worked to build capacity and achieve impact using direct ties to diverse stakeholders in both host and investment countries. However, as a pro-

gressive multidisciplinary international group dedicated to creating practical impact, successes and shortcomings were part of the process.

### 23.2.1 Lesson one: engage the right stakeholders and partners

Choosing organizations or individuals (i.e. partners) to form a partnership is a misleadingly simple concept that can cause long-term issues if not carefully undertaken. The array of available partners, and those incorporated in the DCP, provided key lessons regarding the alignment of individual interests with collective goals. The overarching lesson that emerged was the importance of ensuring that partners are brought together after iterative discussions of feasibility, appropriateness and willingness to engage with collective goals. Personal and institutional ambitions and agendas may interfere with partnership goals. Therefore, establishing a clear understanding of role responsibilities across a partnership from the beginning will significantly contribute to collective success.

Due diligence in the corridor context specifically requires understanding of key stakeholders' and potential partners' interests, motivations and capacities to hone priority partnerships. As collaborative working creates challenges and risks, these must be thoroughly addressed during the partner selection stage to ensure that partners are chosen and paired appropriately to complement one another. Due diligence must involve the dedication of time and resources for risk assessments and participatory scenario analyses to be conducted to estimate the effects of different partner involvement on long-term project impact. Equally critical in this process is to ensure that objectives and expectations are clear from the beginning, not only regarding results, but also the process for achieving those results. Partners' interests, motivations, capacities and risks should be assessed against these objectives and expectations. The leading partner and management team should ensure that each partner has shared commitments and

motivations to feasibly contribute to mutually agreed upon objectives.

The DCP achieved great collaboration across partners, despite the challenges faced in working across disciplines, cultures, norms and countries. By maintaining regular in-person collaboration (see Fig. 23.2) prior to the COVID-19 pandemic, trust, understanding, and respect between project partners was established. However, despite good rapport between partners existing, this did not necessarily facilitate easy multidisciplinary collaboration when insular working within traditional disciplines such as political science or ecology, was the easier pathway or when distance hindered ease of communication.

***“Unless commitment is made, there are only promises and hopes, but no plans”***

- Peter F. Drucker, 2012

Managing the short- and long-term needs of partners is critical when working with different types of institutions. The DCP found that different perspectives, cultures of working and driving motivations, often led to individual differences and problems, often around the issue of time commitments and responsibilities. Therefore, the risks associated with different levels of commitment, even when motivations are aligned, must be accounted for early on to ensure partners' specific needs and strengths are supported. For example, postdoctoral researchers were the main research body of the DCP, and strengthening their skillsets were key foci of internal capacity-building activities. However, managing the constraints that such early-career researchers must abide by for career progression (producing reviewed scientific papers) challenged the feasibility of actioning different types of publications needed for other purposes (policy facing and practical guidelines). These restrictions are not always limiting factors if proactively addressed, but they are important to consider in projects constructed in this way.

The DCP encouraged the production of appropriate outputs to engage specific corridor decision makers across different

contexts to try to suit the needs of diverse local stakeholders. Impact success is reliant on embedding local ownership by decision makers into outputs as early on as possible to help ensure their utility. Within the DCP, getting partners to participate in achieving impact through different means than what they are accustomed to in their daily work requires clear expectations to be laid out from the beginning. Therefore, ensuring the correct partners are brought together from the start will ease the achievement of intended objectives and will help to facilitate the smooth operating of a partnership with fewer tensions.

For the DCP, the realities of institutional and individual requirements and practical difficulties in working across disciplines and countries was found to need greater provision of support than originally anticipated. In retrospect, the planning of feasible collaborations could have been more rigorously designed. For example, while a Theory of Change (ToC) was collaboratively developed at the project onset, it was not reported against until reintroduction in 2020, leading to challenges in gaining partner input and interest in the broader DCP impact measurement process. Similarly, to impact assessment processes, thorough planning often falls short due to the political desire to start implementing action hastily. This results in reactive, rather than proactive measures.

To improve future partnerships, an impact-focused system should be adopted into strategic planning from the beginning to highlight how the linkages across a partnership will shape outcomes. Additionally, using a project charter to set out an agreed-upon amicable working style across a partnership could help to manage partner expectations. Establishing a clear division of labour within a collaborative framework that takes different cultural and institutional working styles into consideration will help to achieve cohesiveness across a diverse partnership.

Figure 23.2 Photograph featuring members of the Development Corridors Partnership from China, Kenya, UK and Tanzania teams in 2019 in Heilongjiang Province, Northeast China



Source: Neil D. Burgess/UNEP-WCMC.

### 23.2.2 Lesson two: establish internal and external support teams

Over the course of the DCP, different internal and external support teams were established to help guide the programme to build capacity and achieve impact. By extending the DCP's management support mechanisms beyond the UNEP-WCMC management team, internal and external support teams provided different scales of support for the DCP's researchers, non-governmental organization (NGO) staff and on a broad collective level.

Firstly, an internal executive committee was established as an additional platform for each member of the DCP to interact and communicate. The committee was made up of the lead management team and partner leads, who met monthly to discuss progress, challenges and opportunities. Committee meetings provided a time to address and resolve issues incurred by all partners internally and externally, and acted as a space for open communication and consensus-building. The committee proved to be the most helpful collaborative tool for the DCP and helped to harmonize the

multidisciplinary research with capacity-building activities for stakeholder impact. It also helped to highlight individual partners' skill-sets, problems and opportunities, while also providing a space for each partner's voice to be heard equitably. Securing this method to systematically learn from each other, particularly during in-person events and workshops helped to secure trust and communication. The DCP regards the use of this committee as one of the driving forces behind its collaborative success. Therefore, the DCP strongly recommends future management teams of international programmes to establish an executive committee to enable the voices of all partners to be heard collectively, track accountability and maintain transparency.

Secondly, an internal 'research hub' was established for all researchers to participate in, to share research ideas, progress, challenges and opportunities. This hub was primarily for researchers, however, due to issues with online attendance, it was opened to the whole DCP. The hub was a useful tool, especially in the early stages of the project, to understand different research trajectories across the multidisciplinary discourse. However, greater incentives to participate and provide



input could have encouraged greater collaboration and synthesis materials. The hub was dynamic to the desires of researchers and provided a platform for some external presentations and ideas to be shared, yet time and resource constraints limited the productivity of the hub in the long term. Greater emphasis could be placed on data-sharing within these researcher-to-researcher teams in the future to help progress collaboration and transparency across multinational teams. Additionally, more consistent emphasis on synthesis could aid future partnerships' final outcomes through more collaborative efforts (further details in lesson nine).

The DCP also used an international independent advisory board (IAB) to broaden the disciplinary engagement and depth of expert guidance into the delivery of the programme. The IAB was made up of leading figures from different international organizations across the public and private sectors.<sup>186</sup> The diverse expertise found within the IAB enabled their experiences to be shared in the most effective ways to engage with decision makers. However, learning the best way to benefit from the experience and expertise of the IAB for the DCP took time as there was no direct contact between the project team and IAB members, and each had to understand the other in terms of where value could be added. A working style was, however, agreed and the inputs of IAB experts became more and more valuable as the programme progressed. By the final year, the IAB members worked with the project team on synthetic outputs, political interventions, fundraising ideas and ways to deliver the maximum legacy and impact for the programme. This external advisory body created additional 'outside-in' leadership, which helped to drive excellence in communicating procedural choices across the partnership. Additionally, the IAB provided more external accountability to the DCP's funders (Global Challenges Research Fund) through an annual independent report. However, going forward, the communication to different project partners about the external advisory

recommendations should be more accessible to help facilitate wider discussion and integration of advised practices. A key lesson is therefore to invest the time to empower external advisors and find ways for them to assist the delivery of the programme and its goals.

Through expert critique, some organizations across the DCP also found national-level advisory boards to help internal committees directly link with stakeholders. Therefore, future programmes should invest in internal and external mechanisms to ensure each partner's specific contextual management and advisory needs are met and should be regularly monitored to ensure time and resources are effectively used. Moreover, using experienced external facilitators practiced in working across sectors or disciplines, can greatly aid the running of complex multidisciplinary partnership.

### 23.2.3 Lesson three: ensure communication is dynamic

Dynamic communication is crucial for all successful processes within a partnership. Effective communication was iteratively purported across the DCP as the fundamental reason for the project's successes and shortcomings. The resources and support provided to appropriately facilitate communication, especially during remote collaboration, was vital to work together to build capacity and impact. This required adaptive capabilities to employ new strategies and reform previous methods to effectively communicate throughout the course of the DCP. Time must be spent to understand the facets that limit effective communication to improve risk management. Management that dedicates resources to ensure that communication across each level of a partnership is secured and is regularly evaluated will contribute greatly to the wider cohesion of a partnership and impact success. Providing the means for communication to be dynamic without being reactive enables communications to

<sup>186</sup> Development Corridors Partnership, International Independent Advisory Board details available here: <https://developmentcorridors.org/advisory-board-2/>

keep up with the ever-changing situations faced by corridor practitioners.

Internal communication mechanisms should not be underestimated in terms of the time allowances needed to implement them, the budget required to make them effective, or the ultimate value they can add to a partnership. Institutional leadership structures were key for the DCP's communication, as detailed in lesson two. When more time and resources were provided to communicate both internally and externally, dynamic capabilities expanded and appropriate communication mechanisms for the context-specific needs of different partners were created. For example, the COVID-19-induced shift to widespread adoption of virtual platforms facilitated higher participation rates in the DCP's internal activities, such as a virtual online conference, where all partners' research and activities could be interactively shared (Fig. 23.3). Deepening internet penetration into fast-urbanizing Africa enabled more widespread external communication and dissemination and allowed more diverse audiences to be reached than ever before, while removing the previous barriers created by the costs of international travel. The many online options available to corridor practitioners provide key communication tools needed for better integration of sectors, disciplines, areas (e.g. urban, peri-urban and rural areas) and nations for future collaborative partnerships. Unfortunately, communication outside the major African cities still suffered connection issues and there were also challenges caused by different time zones and online platform restrictions such as Google, Microsoft SharePoint, or WhatsApp, which hindered collaboration.

Communication with the communities on the ground, who could potentially suffer at the hands of development corridor implementation and poor planning, were kept at the forefront of the DCP's external communication strategy. Mechanisms that break the digital divide and allow dissemination of results to communities affected by corridor developments, require some innovative thinking, especially in a time of crisis, such as the

COVID-19 pandemic, when the usual methods such as having a community meeting to disseminate and discuss findings is difficult to organize. As the DCP draws to a close, plans to use mass media, such as community radio and primetime news to highlight key findings are being coordinated. The choice of these channels is based on a consultative process involving local partners and experts, and such communications efforts need to be adopted in broader corridor advocacy, awareness-creation and public consultation processes.

A concept that resonates across the DCP is poignantly summarized in the difficult-to-source African proverb: "if you want to go fast, go alone; if you want to go far; go together". This depicts the management approach that strives to enable the best of both situations. However, the practicalities of international partnerships dictate that working together can take more time and more effort. The DCP exemplifies how a partnership as a whole is greater than the sum of its parts. Therefore, it is imperative that management resources are adequately aligned to streamline communication processes, while taking into consideration the lessons learned, which are presented here, to enable the process of going far together to be as seamless as possible.



Figure 23.3 Screenshot of a meeting during the Development Corridors Partnership Internal Mid-Term Conference in September 2020 with partners from the UK, China, Kenya and Tanzania



### 23.2.4 Lesson four: strategize planning proactively

Proactive target setting can shape the feasibility of ambitious long-term project impacts. The embedding of a ToC helped the DCP to think critically about how to attain project impact while remaining flexible to changing processes. This was supported by underlying management mechanisms used to measure the incremental impact of partners' work. Coordinating the planning of targets with the monitoring of the actions taken to achieve them helped to maintain accountability and momentum for the DCP. Tracking impact progress helped to improve the DCP in a dynamic manner, as risks could be flagged, and the management of different partners' needs could be adhered to with better understanding of the situation. Budgeting enough resources to adaptively help collaboration, particularly if in-person activities are not possible, as experienced by the DCP due to the COVID-19 pandemic, ultimately facilitates a more cohesive approach to attaining targets on route to delivering long-term impacts.

***“Theory of change is a dynamic, critical thinking process, it makes the initiative clear and transparent - it underpins strategic planning.”***

- Dr Helene Clark, Act Knowledge (Vogel, 2012)

The DCP used a ToC to help to address non-complementary project outcomes from the beginning of the programme (Theory of Change 2019). A ToC identifies desired long-term impacts and then works back from these to identify all the conditions that must be in place for the impact to occur (Vogel 2012). The DCP's ToC contains high-level goals to produce research, build capacity and achieve impact, which required different mechanisms to achieve success. Therefore, incorporating a more granular approach, developed later in the programme through impact pathways, helped partners to visualize the interconnectiveness between each of their individual activities and outputs, and those from across other work packages and country teams.

By establishing routes to the delivery of outcomes and impacts, operational silos were

broken, which helped unite the DCP. Using an impact-focused approach with collective input is not common in corridors, as partnerships tend to operate insularly, if they are established at all. Therefore, the DCP demonstrates how, within the corridor context, integration is possible. This contrasts with the common problem within corridor planning, for instance, of impact assessments being underutilized after completion and of research more generally. For the DCP, impact pathways<sup>187</sup> helped identify the different ways impact could be achieved. For instance, different output types were utilized, such as hosting workshops to engage different stakeholder groups. This focus on using impact systems thinking addresses a common flaw in Environmental Impact Assessments (EIAs) Processes where research is left underutilized and is not integrated into processes to improve corridor planning. Here, impact pathways formed the basis of identifying target and common stakeholders across the DCP for more strategic stakeholder analysis, and facilitating research-finding dissemination for effective impact.

One of the DCP's impact pathways focused on sustainable natural resource management, which aimed to inform "more sustainable natural resource management and resilience to climate change in corridors". To map this pathway, the DCP collaboratively discussed and analysed what outputs were required to primarily influence decision-making. Building the capacity of our partners to address = impact pathways was one of the most important aspects of the DCP project. The DCP was brought together to map impact activities, establish pathway-specific impact routes and elicit previously untapped knowledge of partners, which may not necessarily be captured in log frames or workplans (DCP 2020). During the remote working phase of the project (from March 2020 onwards), impact pathways enabled great collaboration, despite the challenge of travel restrictions.

Within development corridors, planning exists through, amongst other things, EIAs and Strategic Environmental Assessments (SEAs). Yet, typically these have been incremental and sporadic and lack implementation capacity. In the DCP, systematic planning and implementation was addressed by using scoping and planning tools such as a ToC and impact pathways. These tools helped to map out how to create effective routes from research and capacity-building to the impact desired. In the same way, to create a sustainability vision for impact assessments in development corridors, EIAs attempt to secure the rigorous planning needed for project level implementation to be effectively carried out. Similarly, SEAs do this at a policy, programme and planning level, allowing wider stakeholder engagement and assessment of alternatives and trade-off analyses. If tools such as scenario planning are adopted and implementation improved, the future of development corridors could surpass the frequent dichotomous win-lose situation between the investor, and the people and nature on the ground, respectively. Development corridors could in fact be holistically beneficial if effective plans were shared and meaningfully contributed to by all corridor stakeholders, in the same manner that effective partnerships require collaboration at each stage, and considered planning with consistent partner contribution.

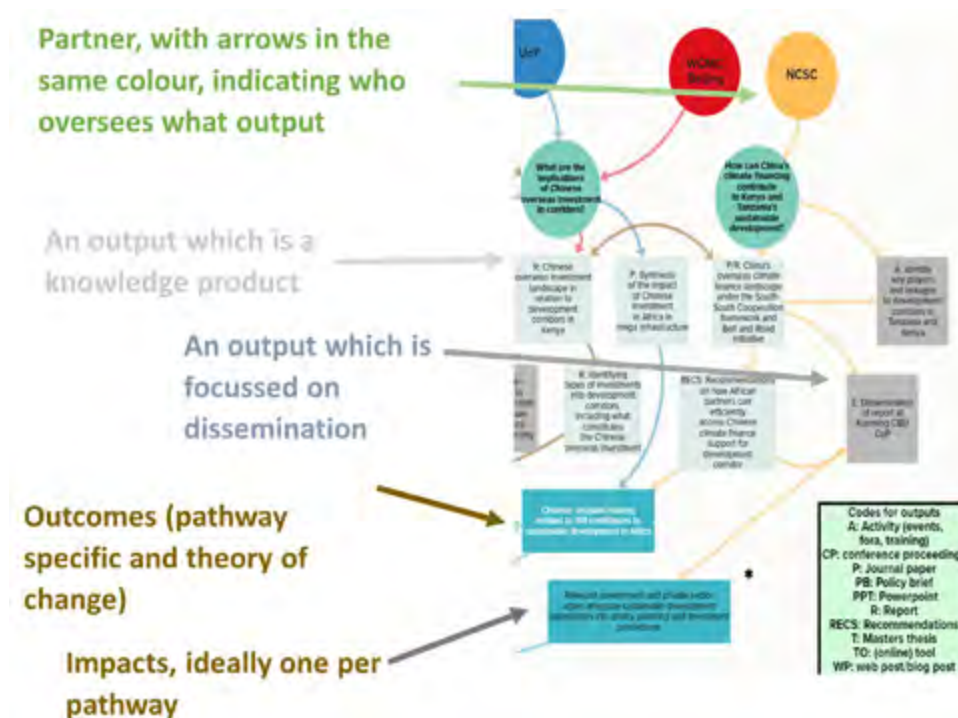
For the DCP, channelling individual partners' efforts into a collective process via mapping impact pathways improved the collective understanding of the feasible routes to achieve impact (Fig. 23.4). Impact pathways provided a means for partners to see the bigger picture of how their work related to the collective aims of the programme and helped to bridge disciplines and identify potential issues. The tool also helped make it explicit what parts of the programme could be achieved by internal partners and what were dependent upon outside interests for successful delivery. For future projects, using

187 Impact pathways for the Development Corridors Partnership were created on Kumu and are available online here: <https://unep-wcmc.kumu.io/impact-pathways-for-the-development-corridors-project?token=PfjoEth1Ev5kKeZk>

a ToC is highly recommended, as it allows for subjective analysis to be discussed and represented, through diagrams and visuals, which can in turn support more dynamic exchange between policy actors, and donors (Vogel 2012). As demonstrated through participatory scenario planning for corridors in [Chapter 12](#) (Thorn *et al.* 2020), the DCP connected outputs to outcomes proactively

ly, while contextualizing the present with an understanding of historical drivers of change. Therefore, the adoption of an impact-focused system should be implemented at the earliest stage possible of a project or programme, to help connect outputs to outcomes proactively, as is needed for corridors to plan appropriately.

Figure 23.4 A brief schematic flow of the Development Corridors Partnership’s Theory of Change logic This diagram is originally from the DCP blog titled *Early strategizing to achieve impact*, available here: <https://developmentcorridors.org/2020/08/19/early-strategizing-to-achieve-impact-using-kumu-across-a-multi-country-project/>



### 23.2.5 Lesson five: manage cultural sensitivities

When working across cultures, miscommunications are a constant risk. However, the consequences of them can be minimized when addressed appropriately and proactively. The DCP managed many different political and cultural sensitivities, as well as diversity of perspectives and approaches to ensure the smooth running of the project. Working cross-culturally in the complex political arena of infrastructure projects requires great attention to context and pre-emptive risk assess-

ment of potential issues. If sensitive issues are not appropriately managed, partnerships can derail, wasting time, money and the potential for positive impact. For future practitioners hoping to engage in international development corridor research, knowledge-sharing, and capacity-building, the DCP provides an experienced platform for further international cooperation and best practices to progress from. Moreover, to facilitate future international collaboration and the integration of disciplines, the DCP is in the process of establishing an accessible resource platform<sup>188</sup> to aid decision-making and research about

188 A resource hub will be available soon on the Development Corridors Partnership website: <https://developmentcorridors.org/2020/08/19/early-strategizing-to-achieve-impact-using-kumu-across-a-multi-country-project/>



development corridors.

The DCP has importantly learned that simply working in an international partnership does not equate to understanding different cultural working practices. The greatest cultural challenge for the DCP was rooted in different working styles, such as the differences embedded within hierarchical and egalitarian cultural structures across partner organizations. It is necessary to understand the ways in which organizational and cultural norms dictate working practices to account for them in a partnership setting to avoid mistakes, missed opportunities, frustrations and delays. In the future, thoroughly addressing the approaches of individual institutions and management teams, especially through open communication, would help to facilitate a more progressive blend of collaborative working.

For international research projects, lead management teams must maximize each partner's success through in-depth understanding of the cultural, historical and political context an organization is operating within. This could be achieved by using experienced cross-cultural facilitators throughout a partnership and ensuring the explicit understanding of responsibilities and roles from the onset of a partnership, as addressed in lesson one. Acknowledgement by management teams of the lack of cultural understanding between partners may also provide a realistic basis from which to increase understanding and collaboration. Planning in-person visits to partner organizations from early stages of an international partnership could facilitate more open dialogue and improve collaboration overall. If a partnership stems from an ethos of open-minded discussion of different approaches to outcomes, the result will aid the cohesion of partners going forward and significantly increases the potential achievable impact

***“The more we can take ourselves out of one’s usual environment and experience projects, initiatives, and talk to people on the ground, and do it together as a shared experience... it can have a massive impact.”***

- Jane Nelson, IFC Sustainability Exchange, 2019

## 23.2.6 Lesson six: break disciplinary silos

The original Adam Smith International Scoping Report (2015) highlighted the dearth of research into corridors (especially in Africa), carried out using cross-disciplinary methods. The DCP aimed to improve such insular working practices by working in a dedicated international multidisciplinary partnership.

One of the key factors limiting the full realisation of the social, environmental, economic, and cultural objectives of development corridors is the lack of integrated, multidisciplinary expertise guiding planning (Gannon 2021, in press). The opportunities to successfully address the challenges posed by development corridors are far greater when integration is well facilitated with the appropriate financial resources to encourage multidisciplinary or multisectoral collaboration. Therefore, the DCP's already built capacity and mechanisms to conduct multidisciplinary research and capacity building for the better planning and implementation of corridors can help to facilitate future integration and management of funding and resources needed to achieve impact.

Multidisciplinary working is necessary for progress within complex programmes such as development corridors. However, that does not make it easy to accomplish when different sectoral bodies attempt to collaborate (e.g. government ministries, academic research institutions, capacity-building and advocacy/campaigning-focused NGOs, United Nations-linked agencies (UNEP-WCMC), and government-linked think tanks). Within the DCP, the diverse disciplinary knowledge was the foundation to enabling multidisciplinary working. As mentioned in lesson two, the use of different regulatory bodies in addition to the lead management team, such as an internal executive committee and national and international advisory boards, can be greatly beneficial for project impact. They can provide the external perspective needed to guide a successful partnership through, encouraging a wider integration of knowledge and experience, thus limiting the insular

working across different scales of an international partnership's components.

Comprehensive mechanisms to integrate working practices between partners exist and must be utilized in new partnerships going forward. The success of the DCP confirms that seeking multidisciplinary practices, despite the challenges involved, helps to facilitate the necessary integration of planning approaches in development corridors from the ground up. Importantly, management teams should not underestimate the costs of being dynamic and flexible to the needs of a partnership for collaborative working. However, the benefits gained in the long-term through such integration certainly outweigh the costs of additional management needs, as the depth of impact is far greater than working within a sectoral silo. The challenge is simply necessary to undertake going forward if improved resilience, growth and sustainability are to be achieved in development corridors.

### 23.2.7 Lesson seven: incentivize to motivate

Motivation to improve development corridor sustainability can stem from many sources. However, the use of incentives within partnerships to encourage collaboration will help to achieve proactive results, as they help to maintain motivation and accountability. In addition to the necessary qualities to work in a productive partnership, such as willingness to actively listen and engage with others, providing incentives for e.g. data sharing or collaborative stakeholder analyses, helps to lessen the burden regularly felt by partners during collaborative working in comparison to when working insularly. The suitability of incentives greatly depends on a partner's motivations and interests. Therefore, managing the different needs of partners through strategized incentivization could help achieve desired outcomes. For example, encouraging the production of outputs may suit one partner, whereas another may be more greatly incentivized by potential employment opportunities, or capacity-building opportunities. Therefore, understanding the potential

ways to support a diverse range of partners is critical for the effective management of international partnerships. Within corridor programmes, harmonizing different incentives to support collective outcomes is a challenge that is necessary to undertake as stakeholder needs do not commonly align across private and public sectors. Therefore, if adequate multistakeholder analysis is undertaken, appropriate incentives can then be proactively applied to promote sectoral integration.

The DCP management acknowledged that improved attention to incentives could have streamlined internal processes more effectively. Managing the incentives needed for partners to carry out different work plans should be addressed by management leads. A risk register was used by the DCP to assess and manage the risks associated with different elements of the project. However, an ongoing and regularly updated supplementary risk assessment of motivations and incentives could have helped to proactively foresee and minimize challenges. Projects can also benefit if flexible funding guidelines are able to be established early on. If there is some funding flexibility to shift budgets when unintentionally underfunded areas at the onset require more funding later, or to adjust budgets when unprecedented events occur such as the COVID-19 pandemic, management can be more receptive to partner's needs. The DCP recognized that greater depth of investigation into methods to manage individual motivations, such as joint ownership of outputs could have also reduced time wasted. Therefore, ensuring appropriate incentives are in place for partners, such as improved stakeholder engagement opportunities, is a proactive management practice that should be adopted. Subsequently, in the continuously evolving context of corridors, motivations and incentives must be regularly monitored and evaluated to progressively engage with partners to improve partnership dynamics to maximize objectives.

### 23.2.8 Lesson eight: create accountability mechanisms

In the complex multisectoral field of development corridors, curating an environment of integrated and adaptive management is paramount to success. The concept of adaptive management was deployed from the outset by the DCP, through academic institutions and non-profit organization partners being brought into all stages of project formation. Establishing effective accountability mechanisms was a key lesson for the DCP that should be integrated into adaptive management processes. It is key that tracking accountability is factored into all stages of international projects to closely monitor and ensure partner responsibilities are upheld.

To improve accountability, preliminary risk assessments were important tools used. However, greater application of risk assessments for individual partners and outputs could have identified potential shortcomings earlier on in processes, without wasting the capacity of partners later in the project's life cycle. Another accountability method used was the close monitoring of timelines and deadlines for different partners to complete outputs. For instance, this was essential during the running of capacity-building activities and the curation of follow-up materials, and the data collection, writing and dissemination for research articles. However, looking forward, earlier interventions to ensure partners were held accountable to deadlines initially could help projects to progress.

Joint ownership of outputs was thoroughly encouraged during the DCP and managed by the lead management team to help achieve desired impact. The DCP also fostered outputs with joint ownership with local stakeholders as early on as possible in an output's lifetime, to help ensure the correct needs were being met for maximized impact to be achieved. One of the DCP's objectives - to impact corridor decision-making - predominantly guided the collaborative approaches adopted. However, challenges such as different working styles and expectations were addressed by providing incentives to engage all

necessary stakeholders for different research and capacity-building outputs.

### 23.2.9 Lesson nine: support synthesis for collaboration

In a project where individual outputs of partners are designed to fit within a collective framework to build capacity and achieve impact, it is important to form some outputs collaboratively. These outputs help to foster partnership unity and maximize expert input. Producing synthetic pieces of work, where responsibilities are relatively equitable, enables partners to deepen their relationships, as work efforts can be recognized more easily by each partner and a greater breadth of expertise can be incorporated. Achieving impact with synthetic products should rely on combined partner dedication. Therefore, if managed effectively, these outputs should illustrate a greater depth of knowledge than what an individual output could achieve. Aggregated knowledge products are necessary within the development corridor context to improve the integration of sectors and disciplines.

Many of the DCP's outputs exemplify the importance of collaboration for impact purposes. A prime example is this impact assessment publication, which illustrates a major collaborative achievement through the contribution of all the DCP's partners and 12 further external organizations. The diverse discourse within this publication demonstrates how truly ground-breaking work is possible when partners utilize each other's expertise in a collaborative manner.

South-south and north-south cooperation progressed collaborative working across the DCP's multinational teams, particularly through ongoing work on climate change adaptation in development corridors. A balance of collaborative outputs alongside individual research of institutions within a partnership helps to secure long-term relationships. It also enables new collaborative methods to come to light to address the complexities of development corridors through interdisciplinary and multidisciplinary efforts.

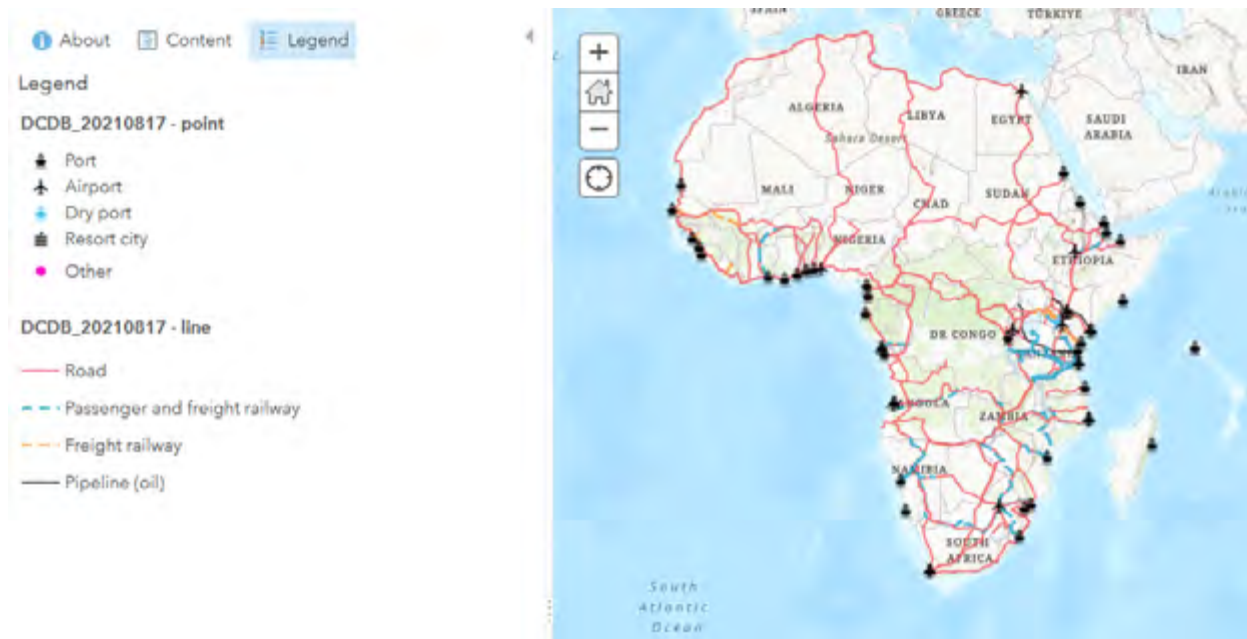


## 23.2.10 Lesson ten: tools for better decision-making

The DCP has learned the benefits and, in some cases the lack of utility, of tools created or used to enhance the programme's impact. The use of tools to inform decision-making throughout the DCP brought about effective management processes and better understanding of individual partners. Therefore, in the same way the DCP has benefited from using robust pre-established tools for better partnership management, similar tools as those described in this publication can be used by corridor stakeholders in planning, implementation and monitoring. This will rely on their ability to access, and capacity to use the resources available. Applying international best practice guidance can help translate linear infrastructure projects into sustainable development corridors.

An online data portal for managing spatial data was one of the tools set up by the DCP.<sup>189</sup> It was built with the intention of using it to store and visualize the available key spatial data collected to expand the external usability of the spatial data and analyses. This was achieved, as demonstrated in Fig. 23.4, which depicts the portal hosting the newly established African Development Corridors Database (Thorn *et al.* 2020). However, the portal proved difficult to gain traction for the researchers involved with individual projects and analyses and was underutilized overall. It was important to understand the value of the tool for different stakeholders internally and externally. Additionally, it is an online portal example of how partnerships can utilize or build tools under an adaptive management strategy and listen to their partners and stakeholders to proactively maximize impact.

Figure 23.5 Example of the Development Corridors Database for Africa: a tool for impact assessment, presented at the Development Corridors Partnership Internal Mid-Term Conference, September 2020 and published in *Nature Scientific data* in 2022.



Source: Thorn *et al.* 2022.

As mentioned above, a spatial database of reported development corridors in Africa (African Development Corridors Database [Fig. 23.5]) was created during the DCP project

and published in 2022 (Thorn *et al.* 2022). It is an open access resources and it represents the world's most comprehensive snapshot of the corridor situation across Africa in 2021.

189 The Development Corridors Partnership data portal is currently available here: <https://dcp-unep-wcmc.opendata.arcgis.com/>

It provides a platform for sharing data on development corridors, undertaking a series of further key analyses, and showcasing how development corridors might have positive and negative impacts across the whole continent if not well managed. The scope of analyses possible through this tool highlights the utility of it well beyond the DCP's lifespan.

An update of a tool to measure the capacity of people and institutions, the Capacity Development Assessment Tool<sup>190</sup>, has also allowed a quantitative measurement of the capacity of the DCP's internal teams at the start of the project and will be repeated at the end in late 2021. This is not often achieved in capacity-building projects and the results of the analysis, and the

tool itself, are a useful contribution to the work of similar initiatives in the future.

Finally, the work around EIA and SEA, and the synthesis of that work in a major output, has allowed the project to make generalized assessments of the steps in corridor planning and the places where these typically go wrong. This generic learning is currently being packaged into a resources portal to increase the accessibility of the robust scientific findings of the DCP with decision makers on the ground. This platform will be the central channel to access and utilize the findings of the DCP, and will be shared throughout the course of 2021 on the Development Corridors Partnership website<sup>191</sup>.

## 23.3 Conclusion

Corridor practitioners are now tasked to utilize the DCP's insights to improve the future management practices guiding projects and partnerships going forward. By paying close attention to the concepts raised here, the learning curves and experiences of the DCP present the opportunity to grow and improve the fundamental routes to streamlining communication and partnership collaboration for increased positive impact.

The key concepts touched upon here largely draw on methods to support the integration of scientific practices and partnerships for the future improvement of corridor resilience and sustainability in planning processes, which will require progressive integration across sectors. Therefore, the DCP encourages the assimilation of these lessons learned into future working practices for the practical improvement of managing linear infrastructure and development corridor-focused programmes.

Impact assessment practitioners face the difficult reality of managing sensitive socioeconomic and environmental contexts. Similarly, the wider context of development corridor practitioners, from contractors and designers to government officials and researchers all face these overlapping challenges. Therefore, the DCP members should be

used not only as ongoing resources capable of expert scientific guidance, but also to guide the formation and management of future partnerships working towards improving the resilience, growth and sustainability of development corridors.

The DCP aims to surpass the typical minimal self-evaluation norms of project management tickbox exercises, through providing real-world lessons learned from our collective lens from across Kenya, Tanzania, China and the UK. By providing management-specific insights for future practitioners such as NGOs, research institutions, the private sector or government agencies, we hope to increase future project successes. The importance of creating context-specific partnership infrastructure to support collaboration and communication are paramount to success. Learning opportunities should not be taken for granted when working within the challenging arena of improving the sustainability of development corridors.

We invite all future corridor practitioners to implement the lessons learned, presented here by the DCP, to lead the way forward to improve management practices within development corridors.

190 Further information available at: <https://www.unep-wcmc.org/resources-and-data/unep-wcmc-capacity-development-assessment-tool-cdat>

191 [developmentcorridors.org](http://developmentcorridors.org).

## Acknowledgements

We would like to thank all the members of the Development Corridors Partnership who contributed their experiences and insightful lessons learnt to the curation of this article. The willingness to share their experiences and introspectively reflect on how the DCP can inform future practices speaks to the character of all DCP members in their pursuit to inform better decision-making within corridor processes. Thanks are due to all those who provided comments and feedback in earlier revisions, particularly the UNEP-WCMC team, without whom this article would not have been possible.

## References

---

- Adam Smith International (2015). Integrated resource Corridors Initiative: Scoping & Business Plan. Adam Smith International. [https://issuu.com/adamsmithinternational/docs/irci\\_external](https://issuu.com/adamsmithinternational/docs/irci_external). Accessed 21 July 2021.
- Drucker, P.F. (2012). *Management*. Abingdon: Routledge. <https://doi.org/10.4324/9780080939063>. Accessed 2 July 2021.
- Fiennes, S. (2020). Early strategizing to achieve impact: using Kumu across a multi-country project. Blog. Development Corridors Partnership. UN Environment Programme-World Conservation Monitoring Centre. <https://developmentcorridors.org/2020/08/19/early-strategizing-to-achieve-impact-using-kumu-across-a-multi-country-project/>. Accessed 2 July 2021.
- Gannon, Kate Elizabeth, Laetitia Pettinotti, Declan Conway, Swenja Surminski, Edward Ndilanha, and Tobias Nyumba. 2022. "Delivering the Sustainable Development Goals through Development Corridors in East Africa: A Q-Methodology Approach to Imagining Development Futures." *Environmental Science & Policy* 129 (March): 56-67. <https://www.sciencedirect.com/science/article/pii/S1462901121003683>
- Nelson, J. and Jones, V.N. (2019). International Finance Corporation Interview: In Their Own Words: Jane Nelson and Veronica Nyhan Jones. IFC 2019 Sustainability Exchange, World Bank Group. Available at: <https://commdev.org/in-their-own-words/jane-nelson-veronica-nyhan-jones/>. Accessed 2 July 2021.
- Theory of Change (2019). What is Theory of Change? The Center for Theory of Change. <https://www.theoryofchange.org/what-is-theory-of-change/>. Accessed 2 July 2021.
- Thorn, J.P.R., Bignoli, D.J., Mwangi, B. et al. The African Development Corridors Database: a new tool to assess the impacts of infrastructure investments. *Sci Data* 9, 679 (2022). <https://doi.org/10.1038/s41597-022-01771-y>.
- Vogel, I. (2012). Review of the use of 'Theory of Change' in International development. DFID Research Paper, Department for International Development. [https://assets.publishing.service.gov.uk/media/57a08a5ded915d3cfd00071a/DFID\\_ToC\\_Review\\_VogelV7.pdf](https://assets.publishing.service.gov.uk/media/57a08a5ded915d3cfd00071a/DFID_ToC_Review_VogelV7.pdf). Accessed 2 July 2021.