



MULUNGUSHI UNIVERSITY

**SCHOOL OF AGRICULTURE & NATURAL RESOURCES
DISASTER MANAGEMENT TRAINING CENTRE**

**MASTERS IN CLIMATE CHANGE AND
SUSTAINABLE DEVELOPMENT**

1 Introduction

2 Rationale

Much of Africa is highly vulnerable to the impacts of climate change, which threaten the continent's ability to address its development challenges. Current and future climate risks should therefore be mainstreamed into development. The next generation of leaders will need to be adept at factoring climate considerations, into the decisions they enact, or the advice they provide. There is need for climate compatible development is low carbon, climate resilient development that focuses on mitigation as well as adaptation while aiming to reduce poverty.

3 Objectives

This Master's level curriculum aims to prepare graduates for either further academic research, or to enter the workplace in policy or practice, in the broad area of climate change and sustainable development in Africa.

The curriculum aims to develop knowledge, skills and attitudes, as well as competencies (the functional integration of knowledge, skills and attitudes) that can be used to understand, define and respond to complex problems related to climate change and sustainable development in Africa.

The objectives of the curriculum are threefold.

- i) It focuses on building broad knowledge of climate change and development from academic and applied perspectives
- ii) To develop the skills and attitudes needed to use or generate relevant knowledge.
- iii) The curriculum aims to integrate knowledge, skills and attitudes to achieve functional competencies for responding to the complexity of climate change in a development context.

4 Learning Outcomes

The following learning outcomes are expected to be achieved by the end of the course:

- 1) **Specialist knowledge** — students will be able to demonstrate specialist knowledge and to engage with and critique advanced thinking and research in the field of climate change and sustainable development
- 2) **Knowledge of applications** — student will be able to demonstrate understanding, evaluate and select appropriate methods, tools, processes or technologies to understand and inform solutions to complex real-world problems related to climate change and sustainable development
- 3) **Knowledge literacies** — student will be able to
 - i) access, process and manage information
 - ii) collate, manage and draw conclusions from theory and research data

- iii) evaluate current processes of knowledge production, including their derivation, contestation, dissemination
- 4) **Research literacies** - student will be able to:
- i) choose an appropriate research methodology
 - ii) conduct a literature review of leading and current research
 - iii) use appropriate, ethical research principles

MASTERS IN CLIMATE CHANGE AND SUSTAINABLE DEVELOPMENT

SEMESTER I SEMESTER II

COURSE	LECTURER
MCS 911: Key Concepts of Climate Change and Sustainable Development	MCS 912: Agriculture, Food Security and Climate Change
MCS 921: Transdisciplinary Thinking and Skills	MCS 922 Climate Change and Ecosystem Services
MCS 931: Climate Change & Variability	MCS 932: Climate Change and Urban Development
MCS 941: Mitigation and Adaptation in Theory and Practice	MCS 942: Climate Change and Social Justice

MCS 900: Student Research Project	
ELECTIVES	
SEMESTER I	SEMESTER II
MDS 921: Disaster Risk Reduction and Management	MCS 952: Building Resilience to climate change
ALW 631: Agricultural Risk Surveillance & Management	ABM 632: Agribusiness Finance & Risk Management
SSS 111: Theory and Practice of Transformative Community Development	

5 Course Content

Semester 1

MCS 911 Key Concepts of Climate Change and Sustainable Development

Rationale

This module examines the concepts of sustainable development and climate compatible development and introduces the fundamentals of climate change science, policy, economic activity and finance in order to lay the foundation for the whole curriculum. Although more focused on theory than practice, this introductory module promotes an inter- and trans-disciplinary learning process through the inclusion of practical knowledge (i.e. knowledge of processes, key role-players, governance systems and common methodologies) in order for students to be able to generate knowledge that is practice-and policy-relevant, positioning international agendas and debates within an African context. As the module is orientated to introducing students to the climate change and sustainable development 'landscape', most of the Teaching-Learning-Assessment (TLA) activities take the form of readings, reviews and lectures to build the necessary foundational knowledge.

Learning Objectives

By the end of this module students should be able:

- Acquire knowledge of climate change science, policy, economics and finance, linking these to the core concepts of sustainable development and the green economy.

- Demonstrate a critical understanding of the climate change and sustainable development 'landscape' in order to apply concepts and principles in practice.
- Review climate change projections, climate economic analyses and climate finance applications from a systemic perspective.
- Translate science information into policy-relevant information and analyse evidence-based policy.

Learning Theme 1: Sustainable Development

Topic 1: Sustainable development theory & practice

Topic 2: Climate compatible development

Topic 3: The green economy

Learning Theme 2: Climate Science

Topic 1: The climate system

Topic 2: The physical drivers of climate change

Topic 3: Climate modelling and projections

Topic 4: Observed and potential changes in climate over Africa

Learning Theme 3: Climate Policy

Topic 1: The international climate regime

Topic 2: Africa in international climate negotiations

Topic 3: International negotiations and local implementation

Learning Theme 4: Climate economics and climate finance

Topic 1: Evolution of economic discourse around climate change

Topic 2: Economic policy instruments

Topic 3: International landscape of climate finance

Topic 4: Finance opportunities in Africa

MCS 921 Transdisciplinary Thinking and Skills

Rationale

The module emphasises the development of transdisciplinary (TD) competencies (the knowledge, attitudes and skills that enable successful problem solving of complex challenges), as well as relevant disciplinary expertise (paradigms, theoretical approaches and research methods). The module provides the core conceptual understandings for engaging with academic and non-academic communities from different sectors to define and respond to specific African challenges.

Learning Objectives

By the end of this module the students will be able to:

- Acquire a philosophical and conceptual understanding of transdisciplinary knowledge production and practice so that they can critically engage in and

contribute in new ways in the field of climate change and sustainable development.

Learning Theme 1: Transdisciplinary Thinking for Climate Change and Development

Topic 1: Problem-solving in the Anthropocene

Topic 2: Transdisciplinary/ Interdisciplinary/Disciplinary thinking: what is it all about?

Topic 3: Co-production of knowledge

Topic 4: Application of theory in case studies

Learning Theme 2: Developing the Research Question, Problem Statement and Rationale of the Research Project

Topic 1: Formulating a broad research topic 16

Topic 2: Developing the problem statement and the rationale

Topic 3: Developing the aim and objectives of the research project

Topic 4: Use of Mendeley Open Access Referencing Management Software

MCS 931: Climate Change and Variability

Learning Theme 1: Spatial and Temporal Trends in local and world climate

Topic 1: Climate variability

Topic 2: Climate change

Topic 3: Data to assess climate spatial and temporal trends

Topic 4: Observed local, regional and globally climate variations

Learning Theme 2: Factors influencing Climate change and climate variability

Topic 1: Major Oscillation regimes (ENSO-Ocean interactions, MJO, NAO)

Topic 2: External factors

Topic 3: Other

Learning Theme 3: Concepts of Climate prediction and modeling

Topic 1: Atmospheric general circulation models

Topic 2: Oceanic general circulation models

Topic 3: Coupled Atmospheric /oceanic models

Topic 4: Land use greenhouse emissions general models

MCS 941 Mitigation & Adaptation in Theory & Practice

Rationale

Although many factors can influence development outcomes in Africa, the continent is highly vulnerable to the impacts of climate variability and change, which complicate and potentially threaten the continent's ability to address its development challenges. Existing development "deficits" can result in higher vulnerability to climate than more

developed countries, and climate impacts can feed back to slow down or reverse development gains. Additionally, development in Africa will require a step change in generation and access to energy, which can be derived from either low-carbon or high-carbon sources; the latter will contribute further to global warming and increase climate change risks for Africa, while low-carbon energy development reduces additional climate risks and opens up possibilities for Africa to “leapfrog” to sustainable energy systems.

Learning Objectives

By the end of this module, the student should be able to:

- Demonstrate understanding of the systemic relationships between both mitigation and VIA on development, as well as the major impacts of climate change on development and of development on climate change.
- Acquire deepened knowledge of the mitigation and VIA issues, both technical and applied, though in-depth critical exploration of selected key issues in both mitigation and VIA.
- Assess the potential impacts and effectiveness of different policy responses to climate change, particularly with regard to their impacts on development.
- Apply transdisciplinary thinking to complex climate and development problems.

Learning Theme 1: Understanding Emissions: Historical Shares, Drivers and Equity

Topic 1: African emissions in the global context

Topic 2: Socio-economic drivers of emissions

Topic 3: Measuring current and future emissions

Topic 4: Potential for mitigation of non-electricity emissions

Learning Theme 2: Low-carbon Development: Energy Planning and Mitigation

Topic 1: Energy Systems

Topic 2: Energy systems and emissions reduction/ low-carbon options

Topic 3: Tools for energy planning

Topic 4: Economic and Policy Tools for Energy Efficiency and Low-carbon Energy

Topic 5. Cross-cutting summative task: Mitigation policy

Learning Theme 3: Climate risk, impacts and vulnerability

Topic 1: The evolution of thinking on risk, impacts and vulnerability

Topic 2: Vulnerability assessment

Topic 3: Climate impact assessment

Topic 4: Social-ecological impacts and vulnerabilities to climate in Southern Africa

Learning Theme 4: Climate resilient development and adaptation

Topic 1: Defining adaptation

Topic 2: Adaptive capacity, barriers and enablers to adaptation

Topic 3: Adaptation assessment and planning

Topic 4: Deep dive into adaptation in a particular sector

Topic 5. Cross-cutting summative assessment task: Adaptation policy

SSS611 Theory and Practice of Transformative Community Development

Electives

MDS 921 Disaster Risk Reduction and Management

ALW 631: Agricultural Risk Surveillance & Management

Semester 2

MCS912 Agriculture, Food Security and Climate Change

Rationale

Robust farming systems are able to change and adjust to new conditions and successful farmers are able to develop and apply methods to enhance ecosystem functions aiming to produce food in a sustainable fashion. Considering the growing climate related uncertainties and threats (such as extreme weather events) to agriculture, climate resilient farming practices have gained attention. Emphasis is placed on integrating proven local knowledge and climate resilient farming techniques to overcome climate related challenges.

Learning Objectives

The student will be able to:

- Identify and evaluate various climate change adaptation and mitigation strategies for a given farm or other stage in the agrifood system.
- Demonstrate understanding of the different classification basis of farming systems in southern Africa, and their vulnerabilities to key drivers of change, including climate variability, climate change and extreme events.
- Identify and evaluate the vulnerabilities of a given type of farming system using established indices and methodologies, and estimate GHG emissions of the system. The student will be able to identify and evaluate the impacts of climate change on agricultural production and food supply, postharvest processing, food availability, food accessibility and food utilisation.

Learning Theme 1: Agriculture and Food Supply in Southern Africa

Topic 1: Characterisation of southern African agriculture

Topic 2: Sustainability of agriculture and food supply

Topic 3: Drivers of change for agriculture and food supply

Learning Theme 2: Interactions between Climate Change and Agriculture in Southern Africa

Topic 1: Climate risks and impacts on agriculture and food supply

Topic 2: Vulnerability and adaptive capacity of farms to climate change

Topic 3: Impacts of agriculture on climate – GHG emissions

Learning Theme 3: Agricultural Adaptation and Mitigation in Southern Africa

Topic 1: Concepts of adaptation and mitigation in agriculture

Topic 2: Coping strategies and risk management

Topic 3: Strategies for adaptation and mitigation

Topic 4: The enabling environment for adaptation and mitigation

Topic 5: Climate smart agriculture

Learning Theme 4: Climate Change and Food Accessibility and Utilisation

Topic 1: Food accessibility in southern Africa

Topic 2: Impacts of climate change on food utilisation

Topic 3: Climate smart food systems

MCS 922 Climate Change and Ecosystem Services

Rationale

All development activities in both rural and urban settings are based on adequate functioning of ecosystems. An integrated approach to management of natural resources ensures sustainability. Climate change impacts will undermine the functioning of ecosystems and the services they provide, while ecosystems can also help with climate change mitigation and adaptation. Emerging issues relating to climate change impacts on ecosystems need to be integrated and accounted for in ecosystem governance and management systems. African governments and their citizens depend largely on the functioning of ecosystems, multiple ecosystem services and biodiversity as a basis of their economy. The productivity of major economic sectors such as agriculture, energy, tourism, forestry, fisheries among others draw directly or indirectly on ecosystem services provided by different ecosystems. Thus sustainability is at the core of how African governments, societies and research institutions view and think about ecosystems under climate change.

Learning Objectives

By the end of the module should be able to:

- Acquire knowledge and skills for the management and governance of ecosystem services for climate resilience and sustainable development.
- Gain knowledge and practical experience of how ecosystems can contribute to climate change adaptation and mitigation
- Demonstrate practical skills in valuing ecosystem services and modelling ecosystems under climate change impacts.
- Develop the skill of teamwork through the design of collaborative team projects as well as the use of peer assessment approaches: A key outcome from this peer assessment approach is that the student develops the ability to engage sensitively with others.

Learning Theme 1: Concepts and Theories of Ecosystems and Ecosystem

Topic 1: Introduction to the concepts and theories of ecosystems and ecosystem services

Topic 2: Ecosystem services and links to human well-being and livelihood

Topic 3: Ecosystem health and resilience under anthropogenic threats

Topic 4: Modelling and assessing ecosystems under climate change impacts

Learning Theme 2: Quantification and Valuation of Ecosystem Services

Topic 1: Approaches to quantification of ecosystem services

Topic 2: Mapping and valuing of ecosystem services

Topic 3: Market based approaches and trade in ecosystem services

Topic 4: Critiques of market based approaches

Learning Theme 3: The Role of Ecosystems in Climate Change Mitigation and Adaptation

Topic 1: The role of ecosystems in mitigation and adaptation

Topic 2: Ecosystems for adaptation and Ecosystem based Adaptation (EbA)

Topic 3: Ecosystems for climate change mitigation and Ecosystem based Mitigation (EbM)

Learning Theme 4: Governance and Management of Ecosystem Services for Climate Resilience

Topic 1: Principles of ecosystem management for climate resilience

Topic 2: Concepts of environmental governance

Topic 3: Policy instruments and tools for governance of ecosystem services

MCS 932 Climate Change and Urban Development

Rationale

Many African countries have high rates of urbanization. As such, more and more of the national population, economic activity and production, resource consumption (e.g. food, water, and energy), political mobilization, construction, land use change, waste and emissions generation is concentrated in and around cities. The welfare and development trajectory of cities and countries are increasingly closely tied. In the context of a variable and changing climate it is therefore imperative that both climate change mitigation and adaptation measures are built into the design, configuration, construction, operations and maintenance of cities and city regions.

Learning Objectives

By the end of the module students should be able to:

- Identify climate change and development challenges at the city scale and equip them to do further research, to advise on and take development decisions at this scale in the context of climate change in Africa.
- Systematically identify how climate impacts and adaptation, climate mitigation, and broader agendas of systemic change (in which climate change is seen as one of many drivers of change) intersect with the key dimensions of urban development.

Learning Theme 1: Urbanisation and the urban dividend

Topic 1: Macro-trends of urbanisation

Topic 2: Urban dividend

Topic 3: Informality

Topic 4: Political economy of urbanization

Learning Theme 2: Addressing climate risks and vulnerabilities at the city-scale

Topic 1: Climate hazards and impacts in cities

Topic 2: Frameworks for addressing climate risk and vulnerabilities in cities

Topic 3: Risk, vulnerability and resilience assessment methods and tools

Topic 4: Planning and implementing urban climate adaptation measures

Learning Theme 3: Climate change mitigation at the city scale

Topic 1: Greenhouse gas emissions in cities

Topic 2: Green economy, mitigation practices and opportunities

Topic 3: City functions and mitigation, integrated planning and development

Learning Theme 4: Governing urban transitions under changing climates

Topic 1: Unpacking urban governance

Topic 2: Governing climate change in cities – who and how?

Topic 3: Politics, power, discourses and decision-making

Topic 4: Pathways and transitions

Course Delivery

- Blended: 2 weeks Residential School, Open and Distance Learning and Online

Course Assessment

- Examination: End of year Examination 40%
- Coursework
- Assignments/Research papers: 30%
- Tests/Group work: 30%

MCS 942 Climate Change and Social Justice

Rationale

The 'human' dimension of climate change is often lost in the technocratic world of climate governance and notions of 'sustainable development' are bound increasingly to ecologically and socially unjust neoliberal market-oriented strategies for development. Yet, the vast majority of people in southern Africa are 'ecologically sensitive', experiencing vulnerabilities associated with widespread dependency on the land and natural resource base, and from exposure to 'natural' hazards. The localised effects of global climate change are exacerbating these experiences. In addition, countries in the Global South have contributed significantly less to the emission of greenhouse gases (GHGs), which are a major cause of climate change than their Northern counterparts, and yet they withstand the worst of climate impacts and now need to include GHG reductions into their planning. These issues should be considered through a social justice lens.

Learning Objectives

By the end of the module students should be able to:

- Acquire the critical skills to question the 'conventional wisdom' of mainstream climate related sustainable development strategies and their framings from a people-centred perspective.
- Critically assess and discriminate between those climate change governance and policy processes that reduce the vulnerability of people and those, which actually contribute to the persistence of vulnerabilities and injustice.
- Engage with and appreciate the position of different actors so that they have a more holistic understanding of the types of challenges facing these actors in addressing climate change.
- Think creatively but also realistically about the kinds of systemic and practical transformations needed at different levels of engagement, in order to enhance experiences of social justice.
- Demonstrate an understanding of other people's experiences and how they, as graduates of this programme, can support and aid in the realisation of a more socially just approach to climate change and sustainable development.

Learning Theme 1: Intersectional Justice and Climate Change

Topic 1: Thinking about What is Fair, What is Just

Topic 2: Dominant voices in climate change and sustainable development discourse

Topic 3: Intersectionality

Topic 4: Gendered adaptive capacity at local level

Learning Theme 2: Social Justice and Mitigation

Topic 1: An overview of social justice and mitigation

Topic 2: Social justice and mitigation at the local level

Topic 3: Balancing national socio-economic development and mitigation

Topic 4: Critiquing the international climate change negotiations

Learning Theme 3: Social Justice and Adaptation

Topic 1: Climate change policies, strategies and interventions

Topic 2: Academic perspectives on social justice and adaptation:

Topic 3: Socially just adaptation in action: CbA and EbA

Topic 4: Case studies

Learning Theme 4: Prospects and Barriers for Pursuing Social Justice

Topic 1: Promoting climate related social justice in sustainable development

Topic 2: Questioning strategies for social justice and sustainable development

Topic 3: Local-global linkages in climate-related social justice grassroots struggles

Topic 4: Looking forward - promoting climate related social justice activism

Electives

6 Course Delivery

- Blended: 2 weeks Residential School, Open and Distance Learning and Online

7 Course Assessment

- Examination: End of year Examination 40%
- Coursework
- Assignments/Research papers: 30%
- Tests/Group work: 30%

8 Entry Requirements

- Applicants must be in possession of a relevant Postgraduate Diploma, or four-year undergraduate degree
- It is assumed that students will have suitable numeracy and literacy skills for higher learning, level.

9 Entry Requirements

- Applicants must be in possession of a relevant Postgraduate Diploma, or four-year undergraduate degree
- It is assumed that students will have suitable numeracy and literacy skills for higher learning, level.

10 Recommended Books and Resources

Ackerman, F. (2007) Debating Climate Economics. The Stern Review vs. Its Critics.
Africa Progress Panel (2015) Power People Planet: Seizing Africa's Energy and Climate Opportunities

AMCEN (2011) Addressing climate change challenge in Africa: A practical guide towards sustainable development.

Arrow, K; Bolin, B; Costanza, R; Dasgupta, P; Folke, C; Holling, C; Jansson, B-O; Levin, S; Maler, K-G; Perrings, C and Pimentel, D., (1995) Economic Growth, Carrying Capacity and the Environment. Science, 268, pp. 520-521.

Ashton, J. (2013) Our Choice Unchained: Climate Change, Growth, and the Baleful Power of a Modern Cult

Ayers and Dodman (2010) Climate change adaptation and development: the state of the debate. Progress in Development Studies: 10

Bob Ward (2015) Climate finance and market failure.

Bodansky, D., & Rajamani, L. (2015) The evolution and governance architecture of the climate change regime. International Relations and Global Climate Change: New Perspectives (MIT)

Buchner, B., Stadelmann, M., Wilkinson, A Federico Mazza, Anja Rosenberg, Dario Abramskiehn. (2014) The Global Landscape of Climate Finance. Climate Policy Initiative (CPI) www.climatepolicyinitiative.org.

CDKN (2015) The IPCC's Fifth Assessment Report: What is in for Africa?

Cities Climate Finance Leadership Alliance (2015) The Bangkok Johannesburg Blueprint

Documentary: An Inconvenient truth: presentation by Al Gore

Dupar, M. et al. (2015) Mainstreaming climate compatible development. CDKN

Edwards, P. N. (2011) History of climate modeling. Wiley Interdisciplinary Reviews: Climate Change, 2(1), 128-139.

Flato, G. M. (2011) Earth system models: an overview. Wiley Interdisciplinary Reviews: Climate Change, 2(6), 783-800.

Frank, R. 2011. The Darwin Economy: Liberty Competition and the Public Good. Princeton Press, New York, pp. 246.

Fundamentals of physical geography, Chapters 7: Introduction to the Atmosphere

Giannini, A., Biasutti, M., & Verstraete, M. M. (2008) A climate model-based review of drought in the Sahel: Desertification, the re-greening and climate change. *Global and Planetary Change*, 64(3), 119-128.

Green Growth Knowledge Platform(2011) Ethiopia's Climate Resilient Green Economy - Green Economy Strategy

Green Growth, Best Practice (2014) Green Growth in Practice: Lessons from Country Experiences

Harvey, D. (2000) *Global Warming: The Hard Science*. Routledge, 336 pages.

Hawkins, E., & Sutton, R. (2011) The potential to narrow uncertainty in projections of regional precipitation change. *Climate Dynamics*, 37(1-2), 407-418.

Hopwood, B., Mellor M. & O'Brien, G. (2005) *Sustainable Development: Mapping different approaches*.

Hulme, M., Doherty, R., Ngara, T., New, M., & Lister, D. (2001) African climate change: 1900-2100. *Climate research*, 17(2), 145-168.

IISD (2010) *Sustainable Development: From Brundtland to Rio 2012*

Lawyers responding to climate change (2016) *Guide to the Paris Agreement*

Lott, F. C., Christidis, N., & Stott, P. A. (2013) Can the 2011 East African drought be attributed to human-induced climate change? *Geophysical Research Letters*, 40(6), 1177-1181. doi:10.1002/grl.50235

Mapping Climate Change website: <http://www.climateregimemap.net>

Metroeconomica, HR Wallingford and CDKN (2015) *Climate change and the post-2015 sustainable development goals*

Michaelowa, A., & Jotzo, F. (2005) Transaction costs, institutional rigidities and the size of the clean development mechanism. *Energy policy*, 33(4), 511-523.

Monbiot, G. (2014) *It's simple. If we can't change our economic system our number is up.*

Moss, R. H., Edmonds, J. A., Hibbard, K. A., Manning, M. R., Rose, S. K., Van Vuuren, D. P., ... & Meehl, G. A. (2010) The next generation of scenarios for climate change research and assessment. *Nature*, 463(7282), 747-756.

Munasinghe, M. (2010) Addressing sustainable development and climate change together using sustainomics. *WIREs Climate Change*. John Wiley & Sons

NASA The Ocean: A Driving Force for Weather and Climate video

Nicolai, S., Hoy C., Berliner, T. & Aedy, T. (2015) Projecting progress: reaching the SDGs by 2030.

ODI/ACFH/GIZ (2013) Understanding readiness to access and use climate finance effectively: Insights from Namibia, Tanzania and Zambia.

Open Society Initiative for Southern Africa (OSISA)
Website: <http://www.osisa.org/publication>

Overseas Development Institute Website: <https://www.odi.org/>

Rai, N., Kaur, N., Greene, S., Wang, P. & Steele, P. (2015) A Guide to National Governance of Climate Finance. International Institute for Environment and Development (IIED)

Raworth, K. (2012) A safe and just space for humanity: can we live within the doughnut. *Oxfam Policy and Practice: Climate Change and Resilience*, 8(1), 1-26.
<https://www.oxfam.org/sites/www.oxfam.org/files/dp-a-safe-and-just-space-for-humanity-130212-en.pdf>

Reed and Stringer (2015). Climate change and desertification: Anticipating, assessing adapting to future change in dryland

Resnick, D., Trap, F., and Thurlow, J. 2012. The Political Economy of Green Growth. *Public Administration and Development*, 32, pp. 215-228.

Tanner, T. & Horn-Phathanothai, L. (2014) *Climate Change and Development*. Routledge.

The Global Landscape of Climate Finance. Climate Policy Initiative (2015)

Tyson, P. D., & Preston-Whyte, R. A. (2000) *weather and climate of southern Africa*. Oxford University Press.

UN (2015) Addis Ababa Action Agenda: Financing for Development

UN (2015) Transforming our World: The 2030 Agenda for Sustainable Development

UN Sustainable Development Knowledge Platform

UNEP (2008) Payments for Ecosystem Services: Getting Started. Forest Trends, The Katoomba Group, and UNEP ISBN: 978-92-807-2925-2. www.unep.org.

UNEP (2011) Towards a Green Economy: Pathways to Sustainable Development and Poverty Reduction.

UNEP 2016. The Adaptation Finance Gap Report 2016. United Nations Environment Programme (UNEP), Nairobi

UNFCCC Website: <http://newsroom.unfccc.int>

Vatn & Bromley (1994) Choices without prices without apologies. Journal of Environmental Economics and Management (26), p. 129-148.

Winkler, H. (2015) Paris Agreement: after climbing a great hill, many more to climb. blog

World Bank Group (2014) Turn Down the Heat: Confronting the New Climate Normal. Washington, DC: World Bank.