



Mitigation Action Plans & Scenarios

RESEARCH PAPER

## Poverty and Climate Change Mitigation

A brief inspiration

Issue 9

Developing  
countries exploring  
pathways to climate  
compatibility

# Poverty and Climate Change Mitigation

## A brief inspiration

---

**Date:** November 2012

**Country:** South Africa

**Authors:**

Britta Rennkamp and Holle Wlokas

© MAPS 2012

Disclaimer: The content of this paper is the responsibility of the authors. The views expressed in this paper are those of the authors.

The following citation should be used for this document:

Rennkamp, B & Wlokas, H 2012. Poverty and climate change mitigation: A brief inspiration. MAPS Working Paper. MAPS. Energy Research Centre. Cape Town.

---



Developing  
countries exploring  
pathways to climate  
compatibility

## Table of Contents

---

Introduction	2
The Objectives	3
The PAMA Framework	5
Choosing Actions	8
Outlook	9
References	10

## INTRODUCTION

---

Poverty and climate change mitigation are two concepts, which trouble policy makers and climate policy analysts, because they perceive them as conflicting public policy objectives. Poverty remains a pressing problem in many middle-income countries, where efforts for mitigating climate change become more urgent. Poverty alleviation often disappears as an explicit priority in the wider concepts like socio-economic, low-carbon or sustainable development. Mitigation strategies rarely directly address the fact that large parts of the population live below the poverty line. Development remains the main rationale for policy intervention, whereas poverty and mitigation need explicit prioritization.

How can actions for poverty alleviation and climate mitigation be effectively combined? Three main concepts attempt to link climate change objectives and development policies in the negotiations.

Firstly, so called 'sustainable development policies and measures' (SD- PAM) address 'entire socio-technical systems' in order to identify institutional mechanisms that link climate change objectives with policies for sustainable development (Bradley & Baumert 2005; Roman 2008; Winkler et al. 2002 cited in Roman 2012). This South African proposal was first introduced to the convention in 2006 (UNFCCC 2006). The systemic concept of SD- PAM differs from the project-based Clean Development Mechanism (CDM).

Secondly, the cdm attempts to promote development through mitigation projects, which generate internationally tradable carbon credits. These climate interventions are obviously no silver bullet for promoting development (Michaelowa & Michaelowa 2007). Further literature finds that renewable energy projects alleviate poverty best in rural areas (Crowe 2012; Holm Olsen et al. & Fenhann 2008) and residential energy efficiency improvements (Uerge-Vorsatz & Tirado Herrero 2012).

Thirdly, the negotiations are concerned with Nationally Appropriate Mitigation Actions (NAMA). The CDM allows projects to generate carbon credits, but not policies. The NAMA approach might change this rule (Okubo et al. 2011) and makes the support through bilateral cooperation more flexible. NAMA is an emerging institutional mechanism, which tries to capture the priority to promote development as a vehicle to address climate change (Roman 2012).

The framework of Poverty Alleviating Mitigation Actions (PAMA) allows for a more conceptual and practical debate about how to combine efforts to reduce emissions and improve people's livelihoods at the same time. PAMA need careful design according to the countries' development and mitigation targets. The PAMA framework can be used both top-down, as a framework for choosing mitigation actions from a macroeconomic perspective or bottom-up, to analyse potential impacts of individual actions. For both purposes, PAMA are very difficult to design and the intention to address both objectives, reducing poverty and emissions, can get lost at any time.

This brief presents the concept of poverty alleviating mitigation actions as a framework to rethink the way programs and policies for reducing emissions are structured in order to reduce both poverty and emissions. To effectively achieve both objectives, we argue that

- i) the development goals need to be clear, timed and quantified;
- ii) actions to reach those goals need to be analysed according to their feasibility and potential impacts on both mitigation and poverty; and
- iii) the actions need to be chosen according to these findings. The PAMA framework can help to create this necessary evidence. We illustrate this with examples from South Africa.

## THE OBJECTIVES

---

The South African government has developed numerous plans with quantified targets to address its developmental problems. South Africa's greenhouse gas emissions constitute around 1% of global emissions. For a developing country, South Africa's annual per capita emissions are relatively high, at 9.2 tonnes per capita (CAIT 2012; DEA 2009) whereas its GDP per capita is closer to developing countries with far lower emissions per capita, on account of the high emissions-intensity of the South African economy, which is one of the highest in the world. In the White Paper, the government aims to reduce emissions through mitigation actions by 34% relative to business-as-usual by 2020 and 42% by 2025 (RSA 2011A). At the same time, South Africa's development challenges are daunting, with massive backlogs in housing, basic services, health, transport and education, exacerbated by the history of apartheid. 39% of the population lives below the poverty line of less than 418 ZAR (equivalent 40 EUR) per month (NPC 2012). Income inequality ranks among the highest in the world, with 0.7 measured in the GINI coefficient, where 0 is perfect equality and 1 complete inequality. Most of South Africa's emissions have their source in the energy sector, and thus South Africa is one of the countries that best exemplifies the challenge of simultaneously limiting carbon emissions and addressing the country's urgent challenge to reduce poverty and inequality (NPC 2012).

In numerous development planning efforts, the South African government quantified several objectives, which target to improve its people’s livelihoods, create opportunities to reduce poverty and reduce greenhouse gas emissions at the same time.

**Table 1 Overview: Elements of South Africa’s low carbon development goals**

	ACTIVITY	DESCRIPTION	TIMELINE
Socio-economic indicators	<i>Poverty</i>	Reduce poverty from 39% to 0% of the population living below the national poverty line (418ZAR per month/2009 prices)	National Development Plan (2011)
	<i>Inequality</i>	Income inequality (as measured in Gini) should decrease from 0.7 to 0.6 by 2030	National Development Plan (2010)
	<i>Jobs</i>	Reduce unemployment from 25% (in 2010) to 15% in 2020. Create 300 000 jobs in the ‘green economy’ with 80 000 in manufacturing and the rest in construction and infrastructure. 400 000 until 2030	New Growth Path (2010)
Mitigation & energy security	<i>Emissions Reductions</i>	‘Implement mitigation actions that will collectively result in a 34% and a 42% deviation below its ‘Business As Usual’ emissions growth trajectory by 2020 and 2025 respectively [...] in accordance with Article 4.7 of the UNFCCC’	National Climate Change Response White Paper (2011a)
	<i>Renewable energy</i>	10 000 GWh (0.8 MTOE) renewable energy contribution to final energy consumption by 2013, to be produced mainly from biomass, wind, solar and small-scale hydro	White Paper on Renewable Energy (2003)
	<i>Overall Energy Mix for Electricity</i>	9,6 GW of nuclear; 16,3 GW of coal; 17,8 GW of renewables; and 8,9 GW other by 2030	Integrated Resource Plan (2011b)

Source: Rennkamp (2012)

These targets can only materialize through a mix of specific public policy intervention. But how will we know what the right mix is? Firstly, we need to check the consistency and compatibility of the targets. The government certainly prioritizes these targets differently. Secondly, it will be necessary to understand the potential impacts of each of the actions on the development goals. Thirdly, government needs to make choices, which causes winners and losers, and implement these choices.

## THE PAMA FRAMEWORK

How can the framework help? The framework can help in three ways. Firstly, it helps to focus the attention in the policy planning process on mitigation and poverty. Both are usually ‘good will’ priorities, which receive lots of attention early in the planning and are the most difficult to implement, because implementation means radical structural changes in the way the economy works and the wealth is distributed.

Secondly, the framework can help to identify and to inform the trade-offs in choosing mitigation actions. Each intervention, which intends to address a certain target, forms part of a system in which it impacts on other interventions. PAMAs can help to identify contradictory incentives in the overall policy portfolio.

Thirdly, the framework can be useful to inform the trade-offs in the implementation of a chosen action. In mitigation actions there is no ‘silver bullet’ which would be able to tackle all developmental and climate policy problems. Therefore, a PAMA is always a combination of interventions, not a single one. A conventional mitigation action, which is completely climate-driven, can turn into a PAMA with the right set of incentives around it.

In a simple typology we suggest four ideal types of PAMA. Ideal types mean that there are obviously hybrid types between them. These types suggest a more conscious thinking about mitigation actions and poverty alleviation.

**Table 2 Typology: Poverty alleviation mitigation actions**

		POVERTY ALLEVIATION POTENTIAL	
		High	Low
GHG REDUCTION POTENTIAL	High	<b>Type 1:</b> Poverty alleviating mitigation action: Both poverty and mitigation are the main drivers of the action.	<b>Type 2:</b> Conventional mitigation action: Purely climate-driven mitigation action without explicit focus on poverty (and possible opportunity cost)
	Low	<b>Type 3:</b> Conventional intervention for poverty alleviation, with no explicit focus on reducing emissions (and possible increase in emissions)	<b>Type 4:</b> Failed/low impact mitigation action, failed poverty action, conventional industrial/economic/environmental policy without explicit focus on mitigation and poverty

Source: own compilation based on Wlokas et al. (2012)

**Type 1:** *Poverty alleviating mitigation actions* are those interventions that have the objective to reduce emissions and address poverty at the same time. These interventions may use the same technologies as other types, but they are implemented in a pro-poor way. These interventions can be single interventions or a combination of policies, which can be promoting a renewable energy technology as a mitigation action, and a subsidy to make it accessible for low income households (e.g. participative waste management, household biogas, low-cost housing with energy-efficiency technologies).

**Type 2:** *Conventional mitigation actions* focus on reducing and avoiding emissions without considering poverty reduction. Type 2 would be mitigation actions without any pro-poor incentives and subsidies. Type 2 concentrates on where mitigation potential is high, which tends not to be among the poor (since emissions are low in absolute terms). Examples for type 2 interventions are energy-efficiency measures in industry, carbon tax and cap-and-trade systems (if revenues are not reallocated pro-poor).

**Type 3:** *Conventional actions for poverty alleviation* focus primarily on poverty reduction and do not have significant mitigation potential. Emissions reductions might be a side effect. Examples here are sustainable forest management, social housing, electrification in centralised energy systems that do not explore the potential of job creation that renewable energy sources have and are based on centralised coal and nuclear power sources that create labour for a few specialised workers, sustainable farming, and biofuels, depending on their implementation.

**Type 4:** *Ineffective actions*, which fail in reducing either poverty or emissions, or conventional actions without an explicit focus on poverty and limited mitigation impacts. Examples are unsafe carbon capture and storage and mainstream industrial incentives that do not consider poverty or mitigation.

This typology allows us to identify these four types of action and to think about the design and choice at macro level of each action more consciously. The typology might help to find opportunities to convert conventional actions into PAMAs, or to prioritize non-obvious mitigation actions as PAMAs.

The concept of PAMA is not intended as a separate category to NAMA. Other dimensions of development are also 'nationally appropriate', but poverty does have a particular place as an overriding priority of developing countries (UNFCCC 1992). Indeed, it makes the meaning of 'development' in developing countries different to its meaning in developed countries – development aims to meet basic needs and reduce poverty. The existence, or magnitude, of these



effects will depend, in part, in most cases on the implementation of the action. A carbon tax, for example, can reduce emissions by putting a price on carbon. If the revenue generated is made available for training, skills development, research and development (for example) as well as small industrial development for (renewable) energy technology, the mitigation action creates jobs that relieve many families from income poverty. Also, a carbon tax can be progressive in that the rich use more carbon than the poor; the rich are therefore subject to relatively more tax. But a tax on coal might put mines out of business, dragging mining families into poverty.

Obviously, there is not only one solution to poverty-alleviating measures. Development models that work in one place might fail in another. The poverty-alleviating effects of mitigation actions cannot be taken for granted. Developing climate policy is in itself a challenging task, let alone integrating poverty reduction objectives into these policies. Therefore, the classification of actions according to this typology requires a profound analysis of the national context including the approach to development, economic growth and capabilities of the state. System considerations are a real priority (for coal mining reasons above).

## CHOOSING ACTIONS

---

Choosing actions requires a number of considerations. The actions need to align to the overall development goals, including poverty reduction. This requires a precise analysis of the goals and how each intervention can contribute to achieving those goals. A comprehensive start is a cost analysis of each action, in combination with an actors' analysis of who will mostly benefit from each action. These analyses will provide insights into the impacts on job creation, poverty, inequality, emissions and other development goals.

These insights will be necessary to inform the trade-offs between the actions and will help decision makers to make and justify their choices. These analyses are particularly important when it comes to large public expenditure on energy plants and infrastructure.

Systemic selection of mitigation action is a difficult task, because the choices create winners and losers. Each selection might have unforeseen impacts on other interventions. Choosing pro-poor would mean that current losers win. This choice requires strong political commitment, and therefore these choices need to be well informed to convince opponents and shape public opinion.

The PAMA typology can help to analyse its design and prepare for implementation. Despite good policy design, the pro-poor intention and the mitigation impacts can still get lost en route to implementation. Therefore, sound measurement and verification, not only of the greenhouse gas reductions but also the poverty reductions, is necessary. This ideally happens in line with the criteria which the national development goals suggest.

## OUTLOOK

---

Our future work on poverty and mitigation will focus on national development planning and implementation. A contribution on planning will disentangle the research and policy challenges in national development planning and choosing PAMA from a macroeconomic perspective. This analysis will inform methodologies for quantifying PAMA within the economy-wide framework.

A further contribution will focus on the planning for implementation once a mitigation action has been chosen. This analysis will explore the value of PAMA as a framework for effective implementation of mitigation actions. Future research will also address the question of how to upscale PAMA into larger interventions.

## REFERENCES

---

Bradley, R & Baumert, K A (Eds.) 2005. Growing in the greenhouse: Protecting the climate by putting development first. Washington, DC: World Resources Institute.

CAIT 2012. Climate analysis indicators tool version 9.0. World Resources Institute, Washington, DC. Available at <http://cait.wri.org/cait.php>.

Crowe, T L 2012. The potential of the CDM to deliver pro-poor benefits. *Climate policy* 0 (0): 1-22.

DEA [Department of Environmental Affairs].

DEA 2009. Greenhouse gas inventory 2000: National inventory report. Compilation under the United Nations Framework Convention on Climate Change. May 2009. Pretoria.

Holm Olsen, K, &Fenhann, J 2008. Sustainable development benefits of clean development mechansim projects: A new methodology for sustainability assessment based on text analysis of the project design documents submitted for validation. *Energy policy* (36): 2819-2830.

Michaelowa, A. & Michaelowa, K 2007. Does climate policy promote development? *Climatic change* 2007 (84): 1-4.

NPC 2012. National development plan - 2030. National Planning Commission. Pretoria.

Rennkamp, Britta. 2012. Sustainable Development Planning in South Africa: A Case of over-Strategizing? In Conference Paper of the 2012 Berlin Conference of the Human Dimensions of Global Environmental Change on "Evidence for Sustainable Development". 5-6 October 2012, Berlin, Germany.

Roman, M 2008. From side effect to co-benefit: The opportunities and challenges of SD-PAM. Report for the Swedish Energy Agency. Stockholm: Stockholm Environment Institute.

Roman, M 2012. Introduction: SD-PAM and the potential of promoting climate action through development policies. *Climate and development* 0 (0): 1-8.

RSA 2010. The new growth path: The framework. Department of Economic Development. Tshwane.

RSA. 2011a. National Climate Change Response White Paper edited by Department of Environmental Affairs. Tshwane <http://www.info.gov.za/view/DownloadFileAction?id=152834>.

RSA 2011b. Integrated resource plan for electricity, 2010-2030. May, 2011. Department of Energy. Tshwane.

UNFCCC 1992. United Nations Framework Convention on Climate Change – Preamble. New York: United Nations. <http://www.un-documents.net/unfccc.htm> - preamble.

UNFCCC 1997. Kyoto Protocol to the United Nations Framework Convention on Climate Change

Uerge-Vorsatz, D & Tirado Herrero, S 2012. Building synergies between climate change mitigation and energy poverty alleviation. *Energy policy* (49): 83-90.

Winkler, H, Spalding-Fecher, R, Mwakasonda, S & Davidson, O 2002. Sustainable development policies and measures: Starting from development to tackle climate change. In K A Baumert, O Blanchard, S Llosa, J F Perkaus (Eds.), *Building on the Kyoto protocol: Options for protecting the climate* (pp. 61-87). Washington, DC: World Resource Institute.

Wlokas, H, Rennkamp, B, Torres, M, Winkler, H, Boyd, A, Tyler, E & Fedorsky, C 2012. Low-carbon development and poverty: Exploring poverty alleviating mitigation action in developing countries. MAPS working paper. Cape Town: University of Cape Town.