

# Typology of NAMAs

*Karen Holm Olsen*, Senior Researcher

[kaol@dtu.dk](mailto:kaol@dtu.dk)

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## Outline:

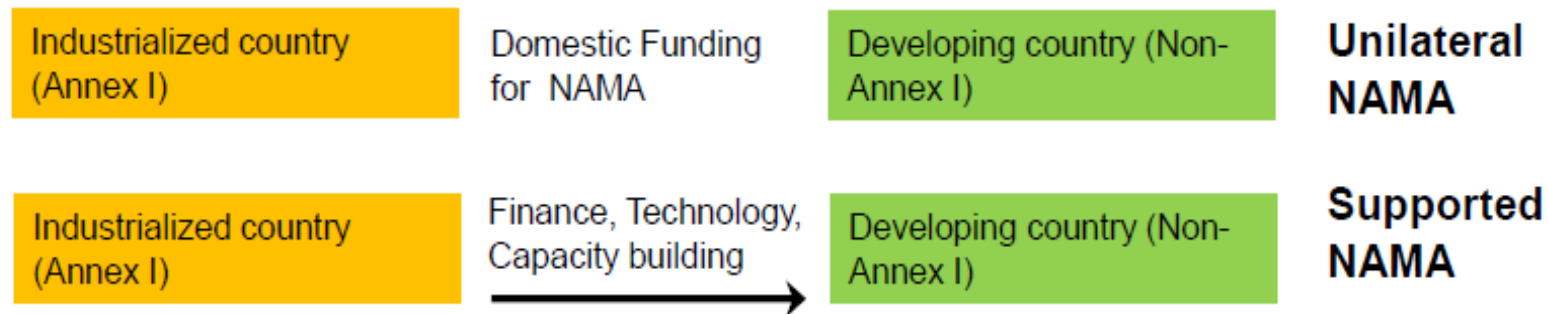
- The concept of NAMAs
- Typology of actions
- Examples of NAMAs in African countries



# The concept

# What is a NAMA?

No internationally agreed upon definition exists; however **2 categories** have emerged:



At a later stage, carbon markets may also be a mechanism in the long run to attract resources for NAMAs. The role of carbon markets in financing NAMAs is under discussion among various stakeholders and includes the concept of **credited NAMAs**. However, this concept is neither used in any of the official documents nor has it yet been formally established.

Source: GIZ NAMA Tool, 2013

# What is a LEDS?

A Low-Emission Development Strategy (LEDS) is a national, high-level, comprehensive, long-term strategy, developed by domestic stakeholders, which aims at decoupling economic growth and social development from greenhouse gas (GHG) emissions growth.

- A LEDS and individual NAMAs should build upon existing national strategies and processes (see examples in the illustration)



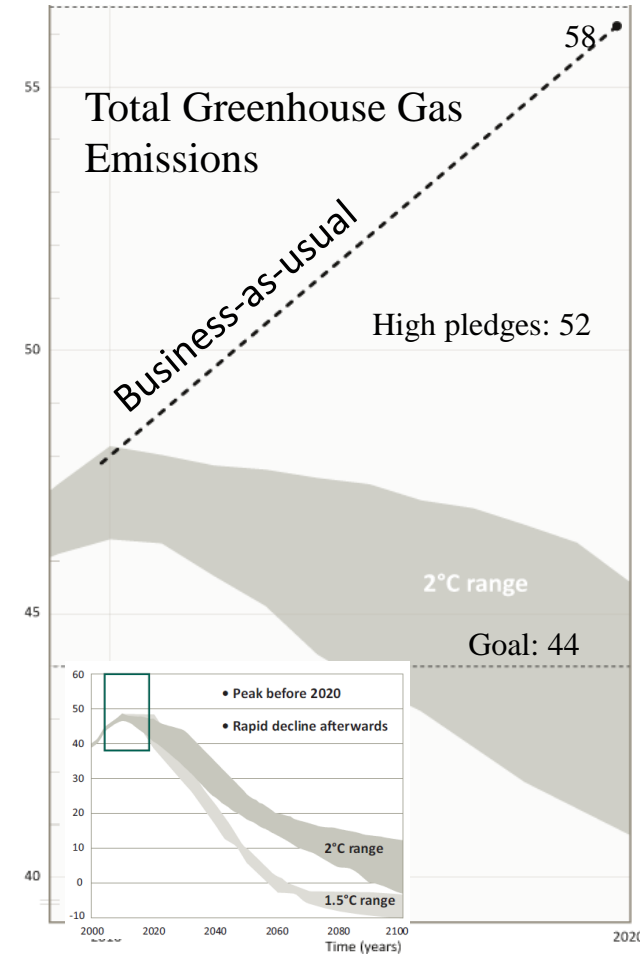
Source: GIZ NAMA tool, 2013

# Why NAMAs?

Framework	SD objectives
CDM	Assist non-Annex I countries with the achievement of sustainable development
LCDS	A low-carbon development strategy is indispensable to SD
NAMAs	NAMAs shall contribute to SD
REDD+	Non-carbon benefits or co-benefits of REDD+ activities is the terminology for positive SD impacts benefitting local communities and indigenous people
NMM	A possible element of the NMM is to promote SD
FVA	There are no decisions, nor guidance on the framework's relationship to SD

**The Gap in 2020 = 14 Gt/year CO<sub>2</sub>e**  
(relative to business-as-usual)

Note: To achieve the 2 degree target globally, both developed and developing countries need to take action



Source: UNEP GAP report 2013

# The NAMA action cycle – compared to CDM

Action/Project cycles	NAMAs	CDM
National Development Planning	Low Carbon Development Strategy (LCDS) <b>Identify SD objectives to which NAMAs contribute</b>	-
Design of action/project	No format requirements <b>Include indicators/metrics for SD benefits in the design format and conduct stakeholder involvement and safeguards for no-harm-done</b>	Project Design Document (PDD)
National Approval	Officially Designated Entity (ODE) submit NAMAs to Registry: seek support for preparation, seek support for implementation or for recognition (unilateral)	Designated National Authority (DNA) issues Letter of Approval (LoA) for SD contribution
Validation/Registration	-	Designated Operational Entity (DOE) and Executive Board (EB)/ Registry
Financing	Supported NAMAs: bilateral, multilateral, private sector, Green Climate Fund, Foreign Direct Investment (FDI) and carbon markets. A mix of sources is possible. Unilateral NAMAs: domestic finance <b>Explicit SD and climate benefits can help inform investors to get the most benefits for their money</b>	Investors
Implementation	NAMA developer	Project owner/Coordinating Managing Entity (CME) for Programmes of Activities (PoAs)
Monitoring	Ditto <b>SD indicators to be monitored</b> along with other action & GHG metrics as specified in the BUR guidelines (see below)	Ditto
Reporting and Verification	International Consultation and Analysis (ICA) of Biennial Update Report (BUR) BURs include reporting on methodologies and assumptions, <b>SD objectives</b> and steps, progress, results, estimated GHG reductions and information about international market mechanisms. There are no requirements for MRV of individual NAMAs	Designated Operational Entity (DOE)
Issuance of CERs/units of GHG reductions	Possible links to NMMS and FVA for crediting of NAMAS <b>Units of GHG reductions to be certified for their SD co-benefits</b>	Executive Board (EB)/Registry

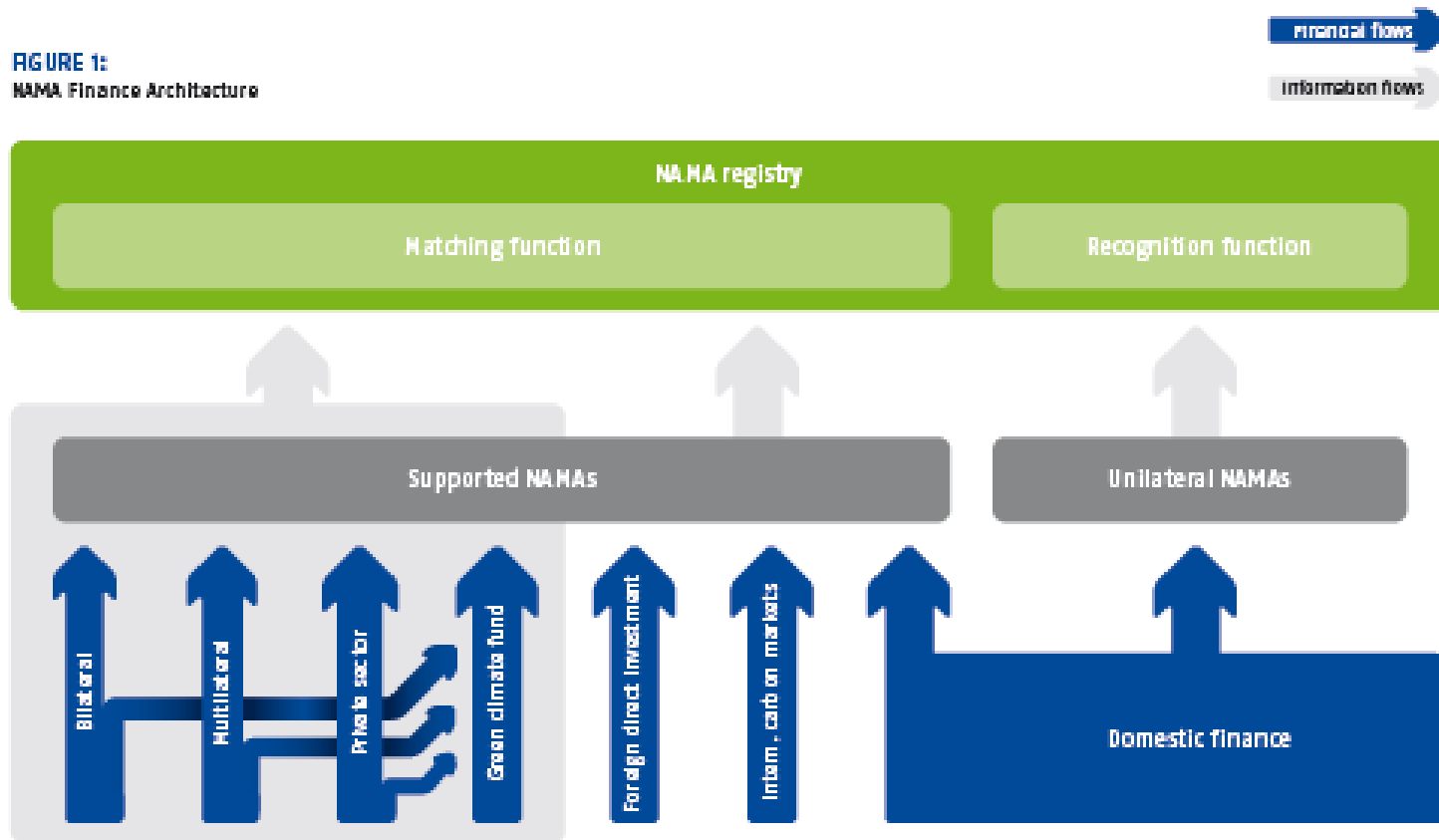
Source: Forthcoming paper by author, 2013. See also presentation under NAMA Partnership Working Group on SD: [www.namapartnership.org](http://www.namapartnership.org)

# Typology of actions



# NAMA financial architecture

FIGURE 1:  
NAMA Finance Architecture



Source: Ecofys

Source: Ecofys Policy Update, Issue IV, May 2012

## Categories of submissions to UNFCCC Registry

- NAMA seeking support for preparation
- NAMA seeking support for implementation
- Other NAMAs for recognition
- Information on support for NAMAs

Source: UNFCCC website: [http://unfccc.int/cooperation\\_support/nama/items/6945.php](http://unfccc.int/cooperation_support/nama/items/6945.php)

# UNEP Risø NAMA Pipeline - typology

ID	Title	Region	Sub-region	Country	Sector	Type	Sub-type	Technical description	NAMA category	Level of implementation	MRV indicators	SD indicators	Emission reduction goal
NAMA0200	NAMA in Renewable Energy and	Africa	West Africa	Mali	EE + Renewable energy	EE+Solar+Wind+Hydro		A list of 14 activities	External support for preparation	Seeking Support			
NAMA0201	NAMA in the Forestry sector	Africa	West Africa	Mali	Forests	Afforestation+Reforestation		A list of 10 activities	External support for preparation	Seeking Support			
NAMA0202	Interurban Electric Rail NAMA	Africa	East Africa	Ethiopia	Rail: electrification	Cargo transport		50% of road cargo	External support for preparation	Seeking Support			
NAMA0203	Clean Production Agreements in Chile	Latin America	South America	Chile	All	All		74 CPA signed + 10 new/yr until 2020	For recognition	Ongoing			
NAMA0204	Implementation of a National Forestry and Climate Change Strategy, including the development and	Latin America	South America	Chile	Forests	Afforestation+Reforestation			External support for implementation	Seeking Support	Being developed together with REDD+ & FCPF		
NAMA0205	Sustainable production with low-emission technologies in agriculture	Latin America	South America	Uruguay	Agricultural waste	Biomass energy			External support for preparation	Seeking Support			
NAMA0206	Sustainable Housing Programme	Latin America	South America	Uruguay	EE lighting+Solar water heaters	Wind		60 m2 houses for 3 persons	External support for preparation	Seeking Support		Target: Lower income families	
NAMA0207	High Integration Program of Wind Energy	Latin America	South America	Uruguay	Wind	Solar	Solar PV		External support for preparation	Seeking Support			20% of electricity from wind in 2015
NAMA0208	First introduction of Photovoltaic Solar Energy in the national electrical grid.	Latin America	South America	Uruguay	Renewable energy	Solar		Two plants	External support for implementation	Seeking Support	National Statistics		200 MW of solar in 2020
NAMA0209	LNG Terminal with regasification capacity of 10,000,000m <sup>3</sup> /d of natural gas	Latin America	South America	Uruguay	Natural gas supply	LNG terminal			For recognition	Under implementation	National Statistics		
NAMA0210	Promotion of renewable energy participation in the Uruguayan primary	Latin America	South America	Uruguay	Renewable energy	Biofuels, Biomass, Wind, Solar			For recognition	Ongoing	National Statistics		55% of energy supply is from renewables in 2015
NAMA0211	Sustainable Urban Transport Initiative	Asia & Pacific	Southeast Asia	Indonesia	Transport	Public transport, traffic management, EE, alternative fuels, non-			External support for implementation	Design of local plans ongoing	km of biking lanes, travel speed, network coverage etc	Air-quality, Accessibility, Equity, Road safety, City livability	Urban Transport emissions 15% below BAU in 2020 in the pilot cities
NAMA0212	Expanding self-supply renewable energy systems (SSRES) in Chile	Latin America	South America	Chile	Renewable energy in Industry, Agriculture and Commercial	Bioenergy, Hydro, Wind, Geothermal, Solar & Tidal			External support for implementation	NAMA still under design	Emission reduction worksheets for each unit	Jobs, private sector leveraging	Contribute of Chiles pledge of 20% below 2020 emissions
NAMA0213	Supporting Implementation of 100% Renewable Electricity by 2020	Asia & Pacific	Pacific	Cook Islands	Renewable energy	Bioenergy, Wind, Solar + EE			External support for implementation	Seeking Support	% electricity from diesel replaced by renewables	Local air pollution reduction, leaks of diesel from storage	100% renewable electricity by 2020 with a phased-in implementation plan that achieves 50% by 2015
NAMA0214	National Program for Catalyzing Industrial and Commercial Organic	Latin America	South America	Chile	Agroindustry, Fisheries, livestock, services	Wine, fruits, crops, salmon, poultry, pigs, pruning, food		Five organic waste management facilities to Pilot projects for steam & hot water for laundry, swimming pools,	External support for implementation	Seeking Support	Biogas/ton waste, energy/ton waste	Jobs created, critical environment episodes	Contribute of Chiles pledge of 20% below 2020 emissions
NAMA0215	Tourism and Waste in the Dominican Republic	Latin America	Caribbean	Dominican Republic	High-density touristic areas	Biomass energy	Shrub clippings & separated waste		External support for implementation	A feasibility study is already done			

Source: UNEP Risø NAMA Pipeline, 1 April 2013 – [www.namapipeline.org](http://www.namapipeline.org)

# UNEP Risø NAMA Pipeline - wordlist

<b>Project actions</b>
Sustainable forest management (REDD)
Programme of actions (PoAs)
Single project activities (CDM)

<b>Policy NAMAs representing actions</b>
Regulation
Grants
Direct payment
Fixed payment
Additional payment (e.g. feed-in tariffs)
Public procurement guidelines
Taxation
Tax reduction/exemption
Variable or accelerated depreciations
Building sector standards
Labelling requirements for low GHG products
Removing subsidies to non-RE
Loan schemes
Guarantee schemes

<b>Policy NAMAs requiring actions</b>
Energy efficiency target
GHG strategy/inventory
Renewable energy target
Other quantitative targets/obligations
GHG emission below BAU level
GHG mitigation target
GHG intensity target
R&D
Enhancing forest carbon sinks
Quota obligations
Promotion

Source: UNEP Risø NAMA Pipeline, 1 March 2013

# NAMAs typologies and examples

Intent	Action
intention to formulate a strategy	formulating a strategy
formulating a strategy	formulating a policy
formulating a policy	formulating a regulation
formulating a regulation	approving the regulation in parliament
approving the regulation in parliament	setting a date for entry into force
setting a date for entry into force	entry into force of the regulation
entry into force of the regulation	enforcing the regulation

Source: Søren Lütken, personal communication March 2013

# NAMA typology of actions

Sector	Type	Sector type	Specific sub-type or technical description	
Agriculture and Forests	Forest		Afforestation	
			Mangroves	
			Reforestation	
	Fuels production	Solid fuel		Charcoal production
				Biomass briquettes
		Liquid fuel		Biodiesel
			Ethanol	
Heating Systems	Efficiency improvements		Higher efficiency steam boiler	
			Higher efficiency using waste heat	
			Replacement of district heating boilers	
	New systems		Cogeneration	
			District heating	
			Geothermal heating	
Transportation	Alternative fuels		Biodiesel for transport	
			Motorbikes	
	Public transportation		Bus Rapid Transit	
			Cable cars	
			Metro: efficient operation	
			Mode shift: Road to rail	
			Rail: electrification	
			Rail: regenerative braking	

# NAMA typology of actions

<b>Waste</b>	Agricultural waste	Waste from Sugar Industry	Bagasse power
		Waste from Forest Industry	Biomass briquettes
			Charcoal production
			Other forest residues
		Sawmill waste	
	Waste from Other Agriculture	Mustard crop residues	
		Other agricultural residues	
	Waste from Rice Industry	Rice husk	
	Waste from Palm Oil	Palm oil solid waste	
		Palm oil waste	
	Solid waste	Composting	Composting
			Industrial solid waste
			Landfill composting
			Palm oil waste
		Gasification	Gasification of biomass
			Switch from fossil fuel to piped biogas
		Incineration	Mustard crop residues
			Other agricultural kinds
			Rice husk
			Bagasse power
Other forest residues			
		Sawmill waste	
		Palm oil solid waste	
Landfills	Combustion of MSW		
	Landfill aeration		
	Landfill composting		
	Landfill flaring		
	Landfill power		
Liquid waste	Manure	Poultry litter	
		Domestic manure	
		Livestock manure	
	Waste Oil	Biodiesel from waste oil	
Wastewater	Aerobic treatment of waste water		
	Wastewater		

# NAMA typology of actions

<b>Conventional Power Production</b>	Efficiency improvements		Higher efficiency coal power	
			Higher efficiency oil power	
			Higher efficiency steam boiler	
			Higher efficiency using waste heat	
			Power plant rehabilitation	
			Single cycle to combined cycle	
	New systems		Cogeneration	
			New natural gas plant	
	Fuel switch	Fossil to fossil		New natural gas plant using LNG
				Coal to natural gas
			Coal to oil	
			Lignite to natural gas	
Fossil to non-fossil			Oil to LPG	
			Oil to natural gas	
			Co-firing with biomass	
			Industrial solid waste	
	Oil to electricity			
	Switch from fossil fuel to piped biogas			
	Switch from fossil fuel to piped landfill gas			

Source: UNEP Risø NAMA Pipeline: <http://www.namapipeline.org/>



# NAMA typology of actions

Renewable Energy	Biomass	Solid residues	Mustard crop residues
			Other agricultural residues
			Rice husk
			Bagasse power
			Other forest residues
			Sawmill waste
		Liquid residues	Palm oil solid waste
			Poultry litter
			Black liquor
			Domestic manure
			Industrial waste
			Livestock manure
	Fuel production	Palm oil waste	
		Wastewater	
Biodiesel			
Biomass briquettes			
Other	Charcoal production		
	Gasification of biomass		
Hydro		Forest biomass	
		Switch from fossil fuel to piped biogas	
		Stoves	
		Existing dam	
Wind		Higher efficiency hydro power	
		New dam	
		Run of river	
Solar	PV	Wind	
		Solar PV	
	Thermal	Solar PV water disinfection	
		Solar thermal	
Geothermal		Solar thermal power	
		Solar water heating	
Tidal		Geothermal electricity	
		Geothermal heating	

# NAMA typology of actions

<b>Industrial Production Processes</b>	CO2 Capture and recycling	CO2 recycling CO2 replacement
	EE industry	Black liquor
		Building materials
		Cement
		Chemicals
		Coke oven
		Construction
		Electronics
		Food
		Glass
		Iron & steel
	Machinery	
Metal products		
Non-ferrous metals		
Paper		
Textiles		
Industrial Waste Heat and Waste Gas	Building materials heat	
	Carbon black gas	
	Cement heat	
	Chemicals heat	
	Coke oven gas	
	Glass heat	
	Iron & steel heat	
	Non-ferrous metals heat	
Petrochemicals heat		
Industrial Gases	Adipic acid	
	Caprolactam	
	HFC23	
	HFC134a	
	Nitric acid	
	PFCs	
SF6		
Other Industrial Processes	Cement	
	Chemicals	
	CO2 recycling	
	CO2 replacement	
Coal Mining and other Mining	CMM & Ventilation Air Methane	
	Coal Bed Methane	
	Coal Mine Methane	
	Mining	
	Non-hydrocarbon mining	
Oil and Gas	Ventilation Air Methane	
	Natural gas pipelines	
	Oil and gas processing flaring	
	Oil field flaring reduction	
	Petrochemicals	
	Petrochemicals heat	

# NAMA typology of actions

Industrial Production Processes	CO2 Capture and recycling	CO2 recycling CO2 replacement
	EE industry	Black liquor
		Building materials
		Cement
		Chemicals
		Coke oven
		Construction
		Electronics
		Food
		Glass
Iron & steel		
Machinery		
Metal products		
Non-ferrous metals		
Paper		
Textiles		
Industrial Waste Heat and Waste Gas	Building materials heat	
	Carbon black gas	
	Cement heat	
	Chemicals heat	
	Coke oven gas	
	Glass heat	
	Iron & steel heat	
Non-ferrous metals heat		
Petrochemicals heat		
Industrial Gases	Adipic acid	
	Caprolactam	
	HFC23	
	HFC134a	
	Nitric acid	
	PFCs	
SF6		
Other Industrial Processes	Cement	
	Chemicals	
	CO2 recycling	
	CO2 replacement	
Coal Mining and other Mining	CMM & Ventilation Air Methane	
	Coal Bed Methane	
	Coal Mine Methane	
	Mining	
	Non-hydrocarbon mining	
Oil and Gas	Ventilation Air Methane	
	Natural gas pipelines	
	Oil and gas processing flaring	
	Oil field flaring reduction	
	Petrochemicals	
Petrochemicals heat		

# Distribution of types of activities

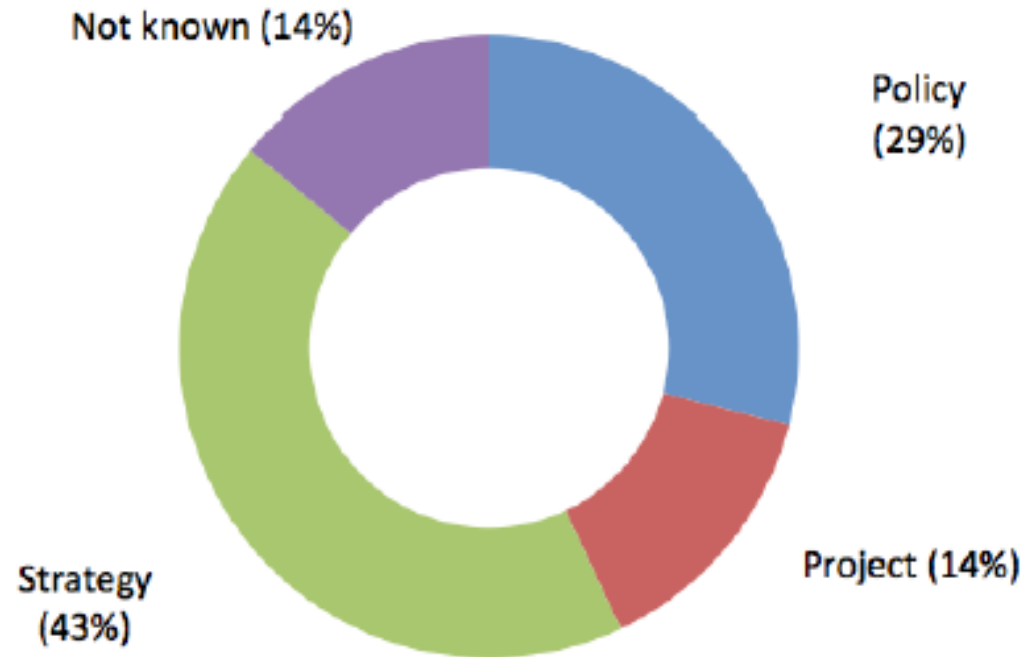


Figure 4: Type of activity

Source: Mitigation Momentum, NAMAs annual status report, 2012

# Sectoral distribution

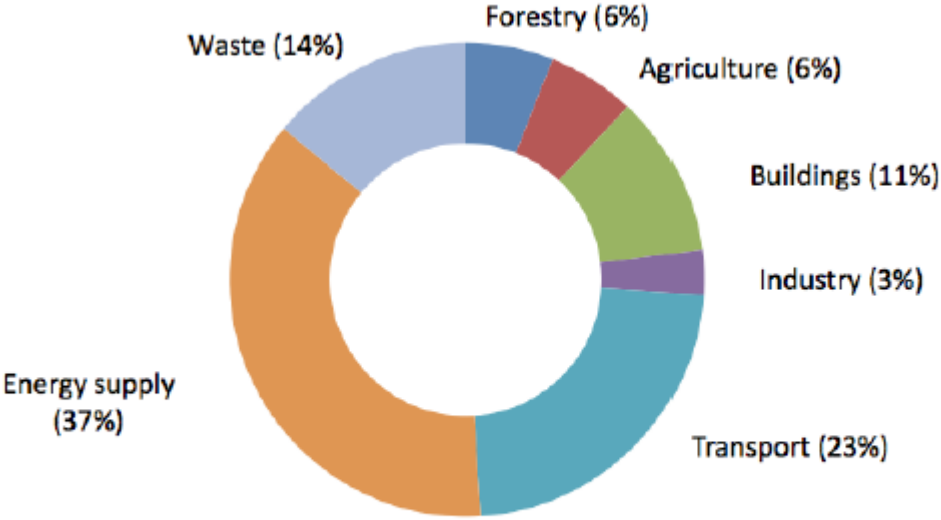


Figure 3: Sectoral distribution of NAMAs

Source: Mitigation Momentum, NAMAs annual status report, 2012

# Examples of NAMAs in African countries

# NAMAs submitted to the Registry

ID	Title	Region	Country	Type of action	Sector	NAMA category	Level of implementation
NAMA0200	NAMA in Renewable Energy and Energy Efficiency ***	Africa	Mali		EE & Renewable energy	External support for preparation	Seeking Support
NAMA0201	NAMA in the Forestry sector	Africa	Mali		Forests	External support for preparation	Seeking Support
NAMA0202	Interurban Electric Rail NAMA	Africa	Ethiopia		Rail: electrification	External support for preparation	Seeking Support
NAMA0203	Clean Production Agreements in Chile	Latin America	Chile	Public-Private Clean Production Agreement (CPA)	All	For recognition	Ongoing
NAMA0204	Implementation of a National Forestry and Climate Change Strategy, including the development and implementation of a Platform for the Generation and trading of Forest Carbon Credits.	Latin America	Chile	Pilot units for the Generation and Trading of Forest Carbon Credits (PBCCn)	Forests	External support for implementation	Seeking Support
NAMA0205	Sustainable production with low-emission technologies in agriculture and agroindustry production chains.	Latin America	Uruguay	Laboratory research for target sectors	Agricultural waste	External support for preparation	Seeking Support
NAMA0206	Sustainable Housing Programme	Latin America	Uruguay	Government housing programme for 20000 new houses	Wind	External support for preparation	Seeking Support
NAMA0207	High Integration Program of Wind Energy	Latin America	Uruguay	System analysis of 20%, 25% and 30% wind in the electricity grid	Wind	External support for preparation	Seeking Support
NAMA0208	First introduction of Photovoltaic Solar Energy in the national electrical grid.	Latin America	Uruguay	Energy Policy including incentives for renewables	Renewable energy	External support for implementation	Seeking Support
NAMA0209	LNG Terminal with regasification capacity of 10.000.000m <sup>3</sup> /d of natural gas with possible expansion to 15.000.000m <sup>3</sup> /d	Latin America	Uruguay	Energy Policy	Natural gas supply	For recognition	Under implementation
NAMA0210	Promotion of renewable energy participation in the Uruguayan primary energy mix	Latin America	Uruguay	Energy Policy including incentives for renewables	Renewable energy	For recognition	Ongoing
NAMA0211	Supporting Implementation of 100% Renewable Electricity by 2020	Asia & Pacific	Cook Islands	A renewable energy technology training programme and a new regulatory frameworks for private sector investment in renewable electricity systems.	Renewable energy	External support for implementation	Seeking Support

Source: UNEP Risø NAMA Pipeline, 1 March 2013

# NAMAs by region

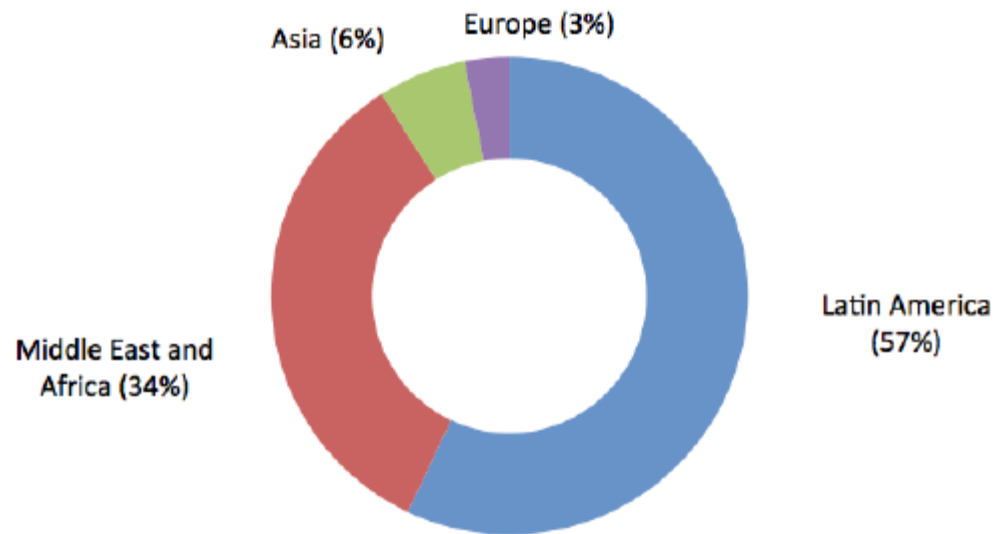


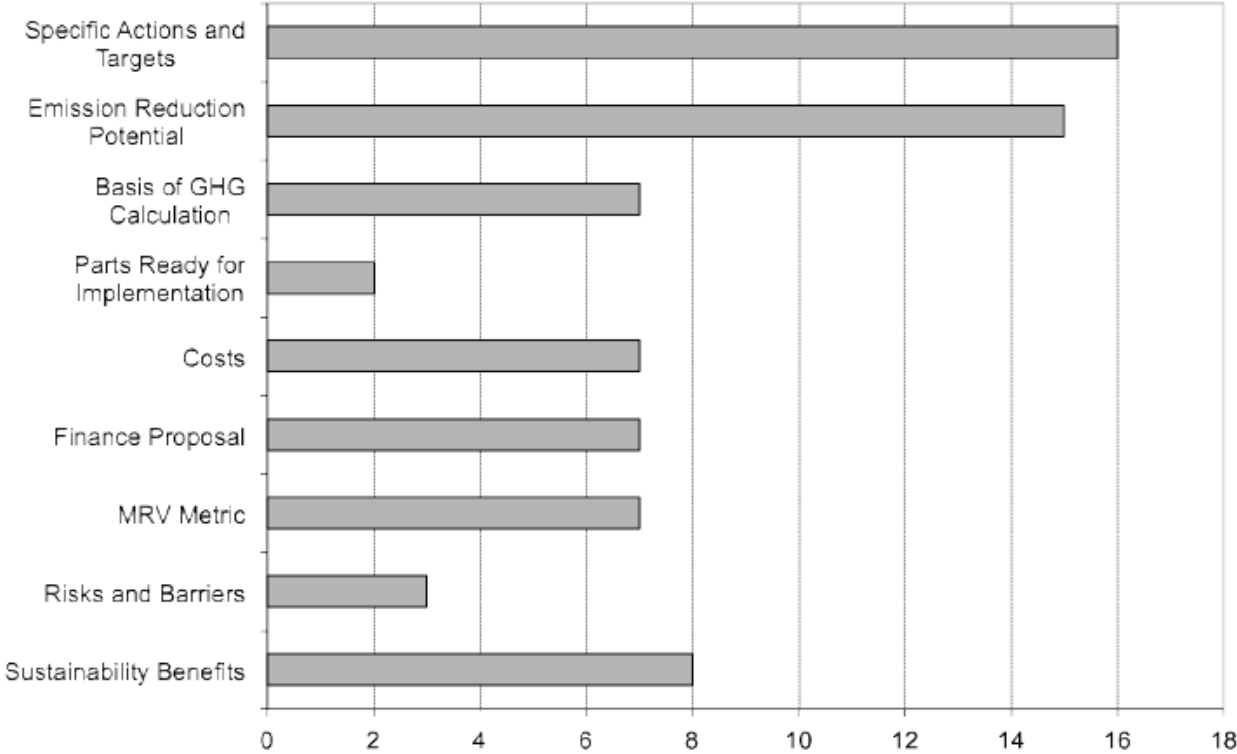
Figure 2: Regional development of NAMAs

Source: Mitigation Momentum, NAMAs annual status report, 2012



# The content of NAMAs

Figure 6: Elements Elaborated in Analysed NAMAs



Source: JIKO Policy Paper 01/2011, Wuppertal Institute



## NAMA Seeking Support for Preparation

A.1 Party	<MALI>	
A.2 Title of Mitigation Action	<NAMA in Renewable Energy and Energy Efficiency >	
A.3 Description of mitigation action	<A list of 14 activities across the country with a total abatement potential of 1 285 034 TCo2/Year in sectors such as small hydro and wind, biomass, solar PV, etc.>	
A.4 Sector	<input checked="" type="checkbox"/> Energy supply	<input type="checkbox"/> Transport and its Infrastructure
	<input type="checkbox"/> Residential and Commercial buildings	<input type="checkbox"/> Industry
	<input type="checkbox"/> Agriculture	<input type="checkbox"/> Forestry
	<input type="checkbox"/> Waste management	
A.5 Technology	<input type="checkbox"/> Bioenergy	<input checked="" type="checkbox"/> Cleaner Fuels
	<input checked="" type="checkbox"/> Energy Efficiency	<input type="checkbox"/> Geothermal energy
	<input checked="" type="checkbox"/> Hydropower	<input checked="" type="checkbox"/> Solar energy
	<input checked="" type="checkbox"/> Wind energy	<input type="checkbox"/> Ocean energy
	<input type="checkbox"/> Carbon Capture and Storage	<input type="checkbox"/> Other: <Pls enter Other text here>
A.6 Type of action	<input checked="" type="checkbox"/> National/Sectoral goal	
	<input type="checkbox"/> Strategy	

## B National Implementing Entity

B.1 Name <Agence de l'Environnement et du Développement Durable (AEDD)>

B.2.1 Contact Person <Mamadou Gakou>

B.2.2 Address <Bamako, quartier du Fleuve, Rue 311, porte 348>

B.2.3 Phone <+223 2023 5867>

B.2.4 Email <mgkou@yahoo.fr>

B.3.1 Contact Person <Boubacar Sidiki Dembélé>

(alternative Contact Person 1)

B.3.2 Address <Bamako, quartier du Fleuve, Rue 311, porte 348>

B.3.3 Phone <+223 2023 2510>

B.3.4 Email <boubacarsdembele@gmail.com>

B.4.1 Contact Person <Seyni NAFO>

(alternative Contact Person 2)

B.4.2 Address <Bamako, quartier du Fleuve, Rue 311, porte 348>

B.4.3 Phone <+223 79061375>

B.4.4 Email <mimikaseyni@gmail.com>

F Support required to prepare the mitigation action

F.1.1 Amount of financial support 40,000.00

F.1.2 Type of required financial support

Loan (sovereign)

Loan (Private)

Concessional loan

Debt Swap

Grant

Equity

Guarantee

Other <Pls enter Other text here>

FDI

F.1.3 Comments on Financial Support <Pls enter Comments here>

F.2.1 Amount of Technical support 200,000.00

F.2.2 Comments on Technical support < A MRV system in the Energy sector has to be developed. Also monitoring and evaluation capacity are low. Research and Academic institutions exist, even a Regulatory framework for both on Grid and off-grid supply and distribution. Therefore the need is clearly to strengthened existing bodies in order to support a NAMA framework and infrastructure

F.3.1 Amount of capacity building support 600,000.00  \$ (Dollars)

man/hours

Thanks!