POLICY BRIEF

NAMAs and the Ghana Shared Growth and Development Agenda 2010 – 2013

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Abstract

This policy brief compares Ghana's medium-term national development policy framework (Ghana Shared Growth and Development Agenda 2010 – 2013 (GSGDA)) and the list of 55 Nationally Appropriate Mitigation Actions (NAMAs) submitted with Ghana's association to the Copenhagen Accord. Aligning development goals as reflected in the GSGDA with climate goals may be a first step in prioritizing NAMAs. The majority of NAMAs, i.e. 36 out of 55, are reflected in the GSGDA (see Annex I).

INTRODUCTION

This policy brief summarises the results of a comparison of two key documents on development and climate change authored by the Government of Ghana in 2010. The first document, the medium-term national development policy framework: *Ghana Shared Growth and Development Agenda 2010 – 2013* (NDPC, 2010; henceforth referred to as *GSGDA*), focuses on national development priorities. It aims to accelerate the growth of the economy and raise the living standards of Ghanaians. The second document is a list of 55 Nationally Appropriate Mitigation Actions (NAMAs) that were submitted by the Ministry of Environment, Science and Technology (MEST) as an appendix to its association with the Copenhagen Accord (MEST, 2010; henceforth referred to as *NAMA-list*). The large number of NAMAs would require some prioritization before developing concrete proposals and moving to implementation. Annex I below presents the NAMAs and their relation to the GSGDA. This combination of GHG emissions impact and development benefits could be a logical basis for setting priorities. Implementation is also easier when the NAMA is already aligned with existing national priorities, policies and government programs.

NAMAS: THE CLIMATE PERSPECTIVE

In December 2009, the UNFCCC climate negotiations did not yield a binding outcome. As an alternative to a broad agreement, the Copenhagen Accord (UNFCCC, 2010) was discussed and 'taken note of' by the UNFCCC. Ghana associates itself with the Copenhagen Accord (CA) and as such the Ministry of Environment, Science and Technology (MEST) has submitted a list of 55 NAMAs. NAMAs refer to actions and policies that a country can voluntarily implement in order to reduce greenhouse gas emissions, and for which they may receive international support. NAMAs don't imply that countries reduce their emissions in absolute terms, rather they identify low carbon alternatives for development. In developing countries with steady economic growth, NAMAs would slow down the emission growth rate but it would not do so at the expense of development.

Box 1: How will NAMAs be financed?

While still under discussion at the international climate negotiations, current thinking around NAMAs distinguishes three types of NAMAs and associated financing. 1) *unilateral NAMAs* represent countries' own actions and are not eligible for external financial assistance, 2) *supported NAMAs* would be eligible for direct financial assistance and 3) *credited NAMAs* would rely on the sale of carbon credits on international markets. The available finance sources need to be well considered when prioritising actions for implementation.

The NAMAs submitted by Ghana cover most sectors of the Ghanaian economy and include both specific projects (e.g. "retrofit existing hydroelectricity dams") and broader policy actions (e.g. "intensify public education on energy conservation"). The NAMA-list currently only contains descriptions, no cost or abatement assessments.

GSGDA: THE DEVELOPMENT PERSPECTIVE

The GSGDA is the most recent in a series of medium term development plans that have been crafted by successive governments since constitutional rule in 1993. It is authored by the National Development Planning Commission (NDPC), a public sector planning agency intended to advise the President of the Republic of Ghana on development policy and strategy. The GSGDA is premised on the current government's *Better Ghana* agenda (NDC, 2008) which sets a number of medium to long term national goals. Taking these goals into account the GSGDA "outlines the development policies and strategies that will guide the management of the economy between 2010 and 2013". The GSGDA encompasses aspects of human development, improved governance and infrastructure development, with a particular focus on the climate change relevant topics of oil and gas exploitation, agricultural modernisation and energy supply/use transformation.

MATCHING THE NAMA-LIST AND THE GSGDA

The interpretation of alignment between the two documents is based on case-by-case best judgement, and is presented in Annex 1. For each of the 55 NAMAs the match with the GSGDA has been made as follows:

For 39 of the NAMAs the mitigation potential is ranked low, medium or high, based on existing quantitative analyses and expert judgements. In addition, there is a category 'negative impact' for the (limited number of) actions that are exclusively development focussed and would likely *increase* emissions vis-á-vis the baseline. As such, these actions would neither qualify as NAMAs, nor be eligible for international support within a climate change mitigation funding context. For 13 NAMAs there was insufficient information to assess the mitigation potential.

The GSGDA is examined for policy objectives and specific strategies that might contribute towards implementing that NAMA. In most cases, there is no perfect match between a specific NAMA and a GSGDA strategy/policy but in many instances elements in the GSGDA either directly or indirectly support specific NAMAs.

Table 1: NAMAs by sector showing their status with regards to the GSGDA and identifying non-practical mitigation actions

Sector	NAMAs	Aligned with the GSGDA	Not aligned with the GSGDA	Increased emissions
Energy	33	19	11	3
Industry	1	-	1	-
Agriculture	8	6	2	-
Land use (LULUCF)	8	7	1	-
Waste	5	4	1	-
Total	**55**	**36**	**16**	**3**

Table 1 shows how the different sectoral NAMAs compare with the GSGDA. The majority of NAMAs are energy related; covering electricity generation, transport, residential use, industrial use and fuel storage. Most (eight) of the energy NAMAs that are not found in the GSGDA are in three specific sub-sectors; i) transport fuel use, ii) industrial manufacturing and iii) oil and gas production. To give an example of a NAMA not found in the GSGDA; "assess, promote and incorporate carbon capture and storage (CCS) in oil and gas production". In this case, the co-benefits relating to CCS would be expected to be minimal.

36 out of 55 NAMAs, are reflected in the GSGDA (Figure 1). Land use, land use change and forestry (LULUCF) is a key emission sector, and is well represented in the GSGDA. LULUCF mitigation efforts are likely to have development benefits[1]. The only specific land-use related NAMA that is not directly reflected in the GSGDA relates to the REDD+ (Reducing Emissions from Deforestation and Forest Degradation) mechanism, an international instrument for financing mitigation in the forestry sector, which has gained importance in Ghana as pilot projects are being planned and implemented.

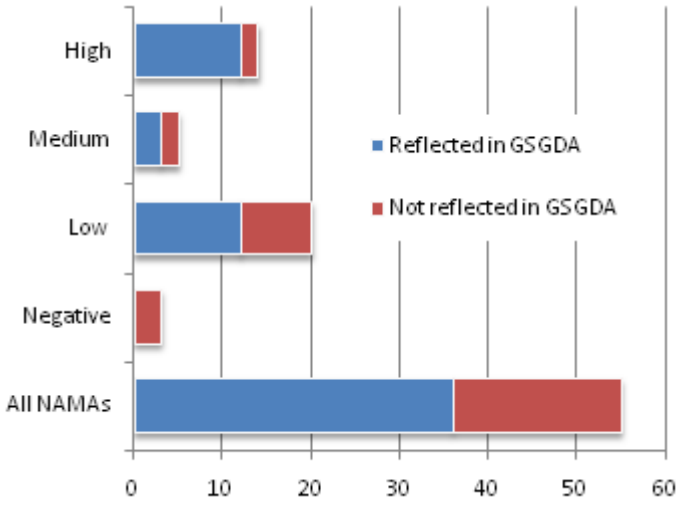

Figure 1: Mitigation impact estimates of NAMAs and their relation to the GSGDA [number of NAMAs per emission impact category].

The majority of the NAMAs that are considered to have a high mitigation potential (12 out of 14) are aligned with the proposed development strategies, including actions such as i) fossil fuel switching to natural gas, ii) renovating the transmissions system, iii) improving public transport iv) improving charcoal production, and iv) improving forest management and preservation. These NAMAs target sectors that are important from an emissions perspective (e.g. electricity production, deforestation and transport) and also yield development benefits (e.g. energy equity, health, biodiversity or economic growth).

TOWARDS IMPLEMENTATION OF THE NAMAS

The 55 NAMAs submitted by the Government of Ghana state broad mitigation topics, but few details beyond this. It is unlikely that all of the NAMAs can be implemented in the short term, meaning that a selection to focus on in the near future will need to be made[2].

In prioritising the NAMAs, apart from aligning development and climate goals, more practical considerations play a role for individual NAMAs; what are the costs for the implementation of the NAMA, both in absolute terms and per unit of GHG abated? How easy are the NAMAs to implement,

[1] several forestry related strategies were removed from this latest version of the GSGDA as compared to previous drafts.
[2] Currently UNDP and EPA are exploring how to follow up on the NAMA list.

what is the lead time and where will the funding come from? Note that choosing which NAMAs to pursue first, may also depend on availability of support and preferences of donors.

By then weighing each NAMA's development and climate benefits alongside costs, barriers, timing and financing opportunities a framework is created in which a prioritisation and implementation of NAMAs can be pursued.

The following key steps could be taken towards implementation of the Ghanaian NAMAs:

1. **Prioritise**: determine costs, ability to implement, mitigation potential and alignment with development goals (GSGDA). Opportunities for support and donor preferences may also play a part in prioritisation, as these can directly influence the viability of particular actions or programmes.
2. **Detailing**: make a business case for the NAMA, show how the action is additional, and how accountability is arranged for (MRV).
3. **Financing**: how will the NAMA be financed?
4. **Plan**: create an implementation plan detailing strategies to deal with barriers and timing constraints

It is recommendable to move towards implementation in the very short term, because at COP17 in Durban (in December 2011) all eyes will be on the pioneers that started experimenting with making the NAMAs concept operational.

AUTHORS AND CONTACT INFORMATION

This policy brief is written by

Lachlan Cameron (ECN)
Xander van Tilburg (ECN)
Laura Würtenberger (ECN)

For more information, please contact:
Laura Würtenberger
Energy research Centre of the Netherlands
Email: wuertenberger@ecn.nl;
phone: +233 547 475 957 (Ghana)

Energy research Centre of the Netherlands (ECN)
Unit Policy Studies
Radarweg 60
1043 NT Amsterdam
The Netherlands
Phone: +31 224 564431
Fax: +31 224 568339
www.ecn.nl/ps/iec

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ANNEX I – LINKAGES BETWEEN NAMAS AND THE GSGDA

Sector	Sub-sector	Category	#	NAMA	GSGDA policy objectives	GSGDA strategies	Estimated emissions impact
Energy	**Electricity**	**Supply**	01	Switch to natural gas (combined cycle)	1. Ensure that energy is produced and utilised in an environmentally sound manner	V.8.1.2 Encourage a shift from oil to gas wherever gas is a technically feasible alternative. IV.5.1.5. Secure reliable supplies of natural gas for power generation	high
			02	Retrofit existing hydro dams	1. Ensure increased access of households and industries to reliable and adequate energy supply	V.1.1.1 Rehabilitate and expand energy infrastructure to ensure adequate and reliable supply V.2.1.8 Seek financing for the rehabilitation and expansion of existing power plants.	medium
			03	build more hydro dams	1. Increase the proportion of renewable energy, particularly solar, wind, mini hydro and waste-to-energy in the national energy supply mix.	III.8.1.1 Promote the use of environmentally friendly energy supply sources such as renewable energy (solar, wind, waste) in the energy supply mix of the country V.3.1.1 Create appropriate fiscal and regulatory framework for the renewable energy sub-sector. V.3.1.3 Complete the development of the Bui Hydropower Project on the Black Volta. V.3.1.4 Support the development of small and medium scale hydro power projects on other rivers, including the Western Rivers (Ankobra, Tano and Pra), River Oti, and the White Volta. V.8.1.1 Promote the use of environmentally friendly energy supply sources such as renewable energy (solar, wind, waste) in the energy supply mix of the country	medium
			04	improve reliability of electricity supply by improved maintenance, timely expansion and upgrading	1. Ensure increased access of households and industries to efficient, reliable and adequate energy supply	V.1.1.1 Rehabilitate and expand energy infrastructure to ensure adequate and reliable supply V.1.1.2 Facilitate the upgrading of the Transmission and Distribution Systems	negative
			05	expand grid access to discourage the need for off-grid generation	1. Ensure increased access of households and industries to reliable and adequate energy supply	V.1.1.5 Increase access to modern forms of energy to the poor and vulnerable through the extension of national electricity grid V.2.1.5 Increase access to electricity of consumers, especially in the rural areas.	low
			06	promote electricity generation from	1. Increase the proportion of renewable energy, particularly solar,	III.8.1.1 Promote the use of environmentally friendly energy supply sources such as renewable energy (solar, wind, waste) in the energy supply mix of the country	medium

		renewable energy sources to increase the share of renewables to 10-20% by 2020.	wind, mini hydro and waste-to-energy in the national energy supply mix.	V.3.1.1 Create appropriate fiscal and regulatory framework for the renewable energy sub-sector. V.1.2.6 Provide transparent legal and regulatory framework for renewable energy development V.1.2.1 Provide incentives for real estate developers and other construction designers to incorporate energy conservation and renewable energy sources in their designs. V.8.1.1 Promote the use of environmentally friendly energy supply sources such as renewable energy (solar, wind, waste) in the energy supply mix of the country	
transmission	07	reinforce transmission systems to reduce transmission losses to 3%	1. Provide adequate and reliable power to meet the needs of Ghanaians and for export	V.2.1.2 Develop a non-congested transmission system. V.2.1.3 Sustain power generation capacity expansion, as well as rehabilitate and reinforce the transmission and distribution infrastructure to meet the projected growth in power demand of 10% per year in the medium-term	high
	08	balance the generation and transmission system	1. Ensure increased access of households and industries to reliable and adequate energy supply	V.1.1.2 Facilitate the upgrading of the Transmission and Distribution Systems V.2.1.7 Reduce power system losses and waste in electricity supply and consumption.	low
distribution	09	standardise transformers	1. Ensure increased access of households and industries to reliable and adequate energy supply	V.1.1.2 Facilitate the upgrading of the Transmission and Distribution Systems V.2.1.7 Reduce power system losses and waste in electricity supply and consumption. V.2.1.3 Sustain power generation capacity expansion, as well as rehabilitate and reinforce the transmission and distribution infrastructure to meet the projected growth in power demand of 10% per year in the medium-term	unknown
	10	expand and maintain distribution systems on a timely basis	1. Ensure increased access of households and industries to reliable and adequate energy supply	V.1.1.2 Facilitate the upgrading of the Transmission and Distribution Systems V.2.1.7 Reduce power system losses and waste in electricity supply and consumption. V.2.1.3 Sustain power generation capacity expansion, as well as rehabilitate and reinforce the transmission and distribution infrastructure to meet the projected growth in power demand of 10% per year in the medium-term	low
end-use	11	develop & enforce standards and labels for appliances	none	none	medium
	12	intensify public education on energy conservation	1. Ensure efficient production and transportation as well as end-use efficiency and conservation of energy.	V.6.1.3. Support a sustained and comprehensive public education and awareness creation campaign on the methods and benefits of energy conservation. V.6.1.6. Build awareness and knowledge on economically attractive energy efficiency measures.	low
	13	promote and support solar PV Lighting	1. Mainstream Gender into the Energy Sector 1. Increase the proportion of renewable	V.9.1.4 Promote the use of modern forms of energy in households V.3.1.12 Support the use of decentralised off-grid alternative technologies (such as solar PV and wind) where they are competitive with conventional electricity supply.	low

				energy, particularly solar, wind, mini hydro and waste-to-energy in the national energy supply mix.	V.1.1.6 Promote energy efficient technologies that safeguard the health of domestic users especially women and children	
		14	Increase rate of rural electrification	1. Ensure increased access of households and industries to reliable and adequate energy supply	V.1.1.5 Increase access to modern forms of energy to the poor and vulnerable through the extension of national electricity grid V.2.1.5 Increase access to electricity of consumers, especially in the rural areas.	negative
transport	**infrastructure/modes**	15	expand road, and develop infrastructure for and promote rail, maritime, air, and inland water transportation systems	1. Establish Ghana as a Transportation Hub for the West African Sub-Region	V.1.1.1. Improve the physical infrastructure at KIA and other regional airports V.1.1.5. Explore the feasibility of establishing other international airports in Ghana V.1.1.7. Improve equipment and facilities in ports to reduce costs for users and make transport services through the port more competitive in the West Africa sub-region V.1.2.6. Develop rail-based mass transport system in: Accra-Tema, Kumasi-Ejisu, Accra-Nsawam, and Takoradi-Kojokrom as part of an integrated transport plan	negative
		16	improve road conditions by increasing the percentage of paved road	2. Create and sustain an efficient transport system that meets user needs	V.1.2.4. Reinstate labour-based methods of road construction and maintenance to improve rural roads and maximise employment opportunities V.1.2.7. Develop, rehabilitate and modernize road access routes to ferry stations	low
		17	expand infrastructure for non-motorised transport	2. Create and sustain an efficient transport system that meets user needs	V.1.2.10. Facilitate the efficient and safe use of non motorised transport facilities such as bicycle lanes and pedestrian walkways in congested central business districts	low
	services	18	develop and improve facilities for public transport system	2. Create and sustain an efficient transport system that meets user needs	V.1.2.5. Implement urban transport projects such as the Ghana Urban Transport Project (GUTP) including Bus Rapid Transit (BRT) and school bussing schemes V.1.2.6. Develop rail-based mass transport system in: Accra-Tema, Kumasi-Ejisu, Accra-Nsawam, and Takoradi-Kojokrom as part of an integrated transport plan	high
		19	incentivise the use of public transport and promote car pooling	1. Ensure efficient production and transportation as well as end-use efficiency and conservation of energy.	V.7.1.12. Encourage the use of public mass transport facilities	low
	fuel use	20	enforce road worthiness certification requirements	none	none	medium
		21	retrofit existing refinery infrastructure and ensure that new refinery pro-	none	none	unknown

			duce non-metallic based gasoline			
		22	substitute the use of gasoline with CNG, LPG and electricity for public transport	none	none	low
		23	promote the production and use of bio-fuels for transport fuel	none	none	low
	vehicle technology	24	promote the use of Euro III and above as well as use flexi-vehicles. Institute measures to promote and switch from the use of gasoline and diesel fuels to use of CNG, LPG and electricity for public transport	1. Ensure efficient production and transportation as well as end-use efficiency and conservation of energy.	V.6.1.5. Discourage the importation and use of high energy consuming vehicles. V.7.1.7. Develop and implement measures to reduce petroleum product consumption in transportation.	low
residential	**cooking**	25	promote the use of LPG	2. Diversify the national energy mix including the use of indigenous sources of energy	V.1.2.2 Promote the use of LPG or and other renewable sources of energy as the dominant energy source for cooking by households V.1.2.3 Promote and expand local cylinder manufacturing capacity in support of the LPG programme	high
		26	promote the use of energy efficient cooking devices	1. Ensure increased access of households and industries to reliable and adequate energy supply	V.1.1.6 Promote energy efficient technologies that safeguard the health of domestic users especially women and children V.1.2.2 Promote the use of LPG or and other renewable sources of energy as the dominant energy source for cooking by households V.3.1.7 Promote the production and use of improved and more efficient biomass utilisation technologies. III.8.1.3 Promote the use of improved wood fuel burning equipment for cooking in households and other commercial activities.	high
		27	promote the use of efficient and clean	none	none	high

				carbonisation			
			28	establish more woodlots	1. Reverse Land and Natural Resources Degradation through Investments	III.4.1.6 Promote plantation/woodlot development among communities to meet the needs of society V.3.1.6 Promote the establishment of dedicated woodlots for wood fuel production.	high
			29	promote the re-use of wood residues	none	none	low
	industrial	**manufacturing industries**	30	improve power factor corrections across industries and institute energy efficiency measures in industrial operations	none	none	low
			31	improve on resource efficiency in industries to promote sustainable production and consumption	none	none	low
	liquid and gaseous fuels	**oil and gas production**	32	promote zero fugitive emissions	none	none	unknown
			33	assess, promote and incorporate carbon capture and storage in oil and gas production and utilization	none	none	low
indust. processes	**metal production**	**aluminium production**	34	reduce carbon dioxide emissions from anode reactions	none	none	unknown
agriculture	**crop production**	**land preparation**	35	promote spot and zero burning prac-	1. Improved agricultural productivity	III.1.1.24. Promote the adoption of GAP (Good Agricultural Practices) by farmers	unknown

				tices			
			36	promote minimum tillage	3. Reduced production and distribution risks/bottlenecks in agriculture and industry	III.1.3.21 Improve incentives and compulsion measures to encourage users of the environment to adopt less exploitative and non-degrading practices in agriculture.	unknown
			37	incentivise use of bio-fuels for mechanised agriculture	none	none	low
		cultivation	38	promote the use of organic fertilizers	none	none	unknown
			39	promote integrated use of plant nutrients	3. Reduced production and distribution risks/bottlenecks in agriculture and industry	III.1.3.21 Improve incentives and compulsion measures to encourage users of the environment to adopt less exploitative and non-degrading practices in agriculture.	unknown
			40	promote the cultivation of high yielding upland rice cultivation	4. Promote selected crop development for food security, export and industry	III.1.4.1 Promote the development of selected staple crops in each ecological zone	unknown
		harvest to post-harvest	41	promote the recycling of crop residues	3. Reduced production and distribution risks/bottlenecks in agriculture and industry	III.1.3.19 Mainstream sustainable land and environmental management practices in agricultural sector planning and implementation.	unknown
			42	improve storage facilities and improve the use of post-harvest technologies	2. Increased agricultural competitiveness and enhanced integration into domestic and international markets	III.1.2.1 Establish a National Buffer Stock Agency III.1.2.8 Promote primary grading, processing and storage to increase value addition and stabilise farm prices III.1.2.10 Promote the development of post-harvest management infrastructure through direct private sector investment and partnerships III.1.2.11 Develop effective post-harvest management strategies, particularly storage facilities, at individual and community levels.	unknown
LULUCF	**forestry**	**land conversions**	43	promote sustainable forest management	2. Mitigate the Impacts of Climate Variability and Change	III.1.2.3 Promote sustainable forest management and implement forest governance initiatives III.2.1.5 Ensure local participation is an integral component of forest and wildlife policy by promoting more effective local commitment as partners in protected area management where local people are involved in all stages of management process	high

	44	implement REDD++ mechanism	none	none	high
	45	implement various forest governance initiatives (Voluntary Partnership Agreement and Forest Law Enforcement Governance and Trade, non-legally binding instrument)	2. Mitigate the Impacts of Climate Variability and Change	III.1.2.3 Promote sustainable forest management and implement forest governance initiatives	high
	46	rehabilitate degraded wetlands	1. Reverse Land and Natural Resources Degradation through Investments	III.4.1.9 Continue the planned development of inland and coastal wetlands sites and the rehabilitation of degraded mangrove resources	unknown
	47	develop and enforce land use plans	3. Reduced production and distribution risks/bottlenecks in agriculture and industry	III.1.3.16 Resolve land acquisition and security of title problems through the establishment of a system of land banks III.1.3.17 Promote the development of community land use plans and enforce their use, particularly in urban and peri-urban agriculture III.1.3.18 Support land tenure arrangement that yield win-win outcomes for both tenants and land holders III.1.3.19 Mainstream sustainable land and environmental management practices in agricultural sector planning and implementation.	high
degraded forest lands	48	enhance rehabilitation of degraded forest lands	1. Reverse Land and Natural Resources Degradation through Investments	III.4.1.1 Encourage reforestation of degraded forest and offreserve areas through the Plantations Development and Afforestation programmes III.4.1.2 Assist investors, under the Forestry Plantation Project, to go into industrial-scale tree farming in specific depleted Forest Reserves and degraded land III.4.1.3 Encourage private investment in commercial forestry outside forest reserves and along dried-up and flowing streams and rivers III.4.1.4 Encourage and promote the use of lesser used species (LUS), particularly for the construction industry on the domestic market. III.4.1.5 Encourage utilization of non-traditional tree species such as rubber wood, coconut and bamboo to supplement raw material supply from natural forests III.4.1.13 Encourage reforestation of degraded forest and offreserve areas, including a medium to long term Plan	high
	49	promote small afforesta-	1. Reverse Land and Natural Resources Degradation through Investments	III.4.1.1 Encourage reforestation of degraded forest and offreserve areas through the Plantations Development and Afforestation programmes	high

				tion/reforestation activities at the communal level		III.4.1.6 Promote plantation/woodlot development among communities to meet the needs of society	
			50	establish commercial plantations	1. Ensure the restoration of degraded natural resources	III.4.1.1 Encourage reforestation of degraded forest and offreserve areas through the Plantations Development and Afforestation programmes III.4.1.2 Assist investors, under the Forestry Plantation Project, to go into industrial-scale tree farming in specific depleted Forest Reserves and degraded land III.4.1.3 Encourage private investment in commercial forestry outside forest reserves and along dried-up and flowing streams and rivers	high
waste	**solid waste disposal**	**landfill**	51	promote waste separation and composting	none	none	low
			52	support waste-to-energy initiatives (sawdust, oil palm waste and other agricultural waste/residues)	1. Convert most of the wastes generated in municipal activities, industrial and agricultural operations to energy	V.4.1.1 Provide access to waste-to-energy technologies for Energy, Oil and Gas technologies V.4.1.2 Maximise energy production from waste if cost effective. V.4.1.3 Facilitate access to grid for waste to energy power plants	low
			53	capture and utilise methane gas from landfill sites	1. Convert most of the wastes generated in municipal activities, industrial and agricultural operations to energy	V.4.1.1 Provide access to waste-to-energy technologies for Energy, Oil and Gas technologies V.4.1.2 Maximise energy production from waste if cost effective.	low
			54	institute measures to minimise waste generation	1 Manage waste, reduce pollution and noise	III.1.2.5 Improve waste management mechanisms III.5.1.5 Promote recycling, recovery, re-use and reduction of waste	low
	waste water handling	**domestic and industrial**	55	build, operate and maintain waste water treatment plants	3. Expand the provision of adequate and disability friendly sanitation facilities	V.6.3.3 Improve the treatment and disposal of wastewater in major towns and cities V.6.3.5 Promote widespread use of simplified sewerage systems in poor areas V.6.3.6 Improve the state and management of urban sewerage systems	unknown