

STRENGTHENING PRIVATE SECTOR'S CONTRIBUTION TO MITIGATION EFFORTS IN CAMBODIA

Climate Change Knowledge Event

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GHG emissions per sector

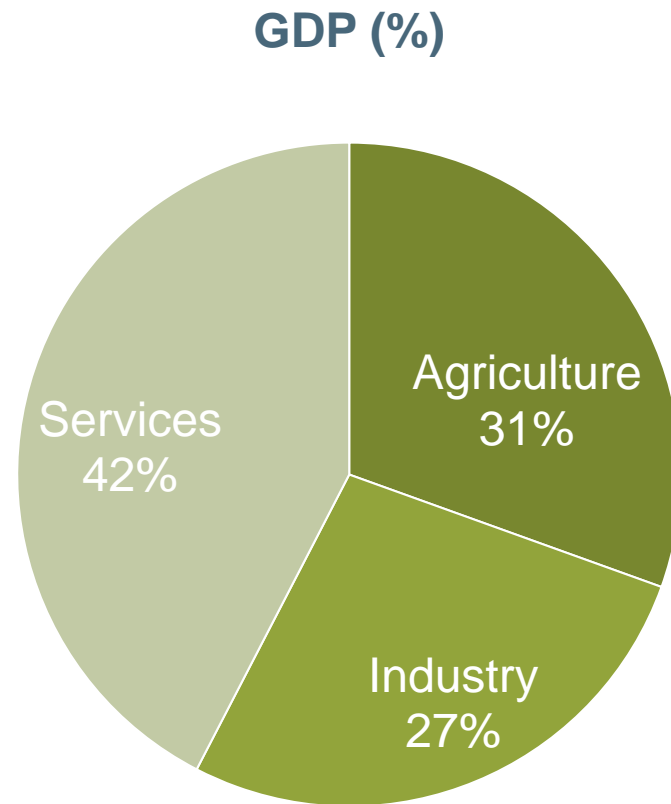
Table 1: Main sources of GHG emissions

Year 2000	Energy	Agriculture	Land use change and forestry ⁶	Waste	Total
Carbon Dioxide (CO ₂)	2,052.59		22,858.73		24,911.32
Methane (CH ₄)	28.19	875.52	32.06	10.18	945.95
Nitrous Dioxide (N ₂ O)	0.40	8.79	0.22	0.05	9.46
CO ₂ removals	6%	90%	-48,165.86	low	-48,166
Total (GgCO₂-eq)	2,767.30	21,112.16	-24,565.50	229.24	-456.81

Source: SNC 2015 (based on 2000 figures)

Private sector profile

- SMEs = 2/3 employment
- 98% = less than 10 employees
- 0.2% = more than 100 employees
- Informal sector = 50-80% of GDP?



Activities (MDB categorization)*	RE (electricity generation, heat production, transmission systems)	EE (in industry, in commercial-public-residential sectors, in public service, vehicle retrofit, energy audit)	Sustainable construction (bioclimatic architecture, AC and refrigeration)	Agriculture, forestry, land use (climate smart agriculture, afforestation and reforestation, biosphere conservation, livestock, biofuels)	Adaptation (drip irrigation, resilient seeds, information systems, insurance...)	4 Waste and wastewater management
Agriculture/Forestry /Fishing	Waste to energy (rice husk gasification, biogas)	Upgrade of diesel generator, EE in crop transportation		Reforestation, community forestry, sustainable farming, EIA, contract farming, organic animal feed, organic fertilizer, land use management, value chain efficiency, agro-forestry, certification, REDD+, Trust fund, PES	Crop diversification, climate risk insurance, drip irrigation, resilient seeds, information and training, tourist attraction through biodiversity/conservation, early warning systems	PPP on clean water
Manufacturing	Solar heater, solar roofs, heat capture	Energy efficiency in equipment, retrofit	bioclimatic architecture	Environment Profit and Loss		Wastewater treatment
Energy	Solar roofs, solar plants, education and training, solar charging stations, biodigesters for industries, solar water heater	Energy Management System (EMS), LPG water heater		Biogas at commercial scale		
Waste and waste water						Wastewater treatment plant, Landfill up to environmental standards, waste sorting, recycling
Construction	Solar roof	Certification, efficient appliances	Certification			Wastewater management
Transportation		Carbon accounting, ISO and ACI norms				Waste water treatment plant
Accommodation and food services (tourism)	Solar heater, solar roofs	AC upgrade, energy audit, changed light bulbs, efficient appliances		Organic food, eco-tourism and stays, marine reserve	Community forestry, diversion of tourist attraction to encompass biodiversity/conservation	Wastewater treatment, compost, recycling, waste management, rain water, landfill upgrade
Financial and insurance services	Solar for own operations	LED, new AC				
Activities of households as consumers	SHS, waste to energy (biomass, biogas), solar tuk tuk, electric cars	ICS, water purifiers, green charcoal, efficient appliances, vehicle retrofit				

Mapping of PS response to CC: key findings

- Lots of **cross sector activities**: waste, RE-EE
- Main driver is **economic savings** (not CC/ environmental performance)
- Heterogeneity in scale, ownership and sophistication
- International groups vs. SMEs
- **No tracking of climate investments** by companies
- Emerging trend on **responsible consumption**: vehicles, ICS, char-briquettes, SHS

Estimate of climate-related investments per sector

	Amounts in USD, per type of investment, for 2012-2015					
Activities (MDB categorization)*	Equity	Loan	Grant	Guarantee/insurance	TOTAL per sector	Share of the sector
Agriculture/Forestry/Fishing	38,090,001	13,750,000	75,217,500	96,000	127,153,501	70.47%
Manufacturing	9,700,000	0	2,800,000	0	12,500,000	6.93%
Energy	3,065,003	15,000,000	200,000	2,000,000	20,265,003	11.23%
Waste and wastewater	3,750	0	0	0	3,750	0.00%
Construction	3,750	0	0	0	3,750	0.00%
Accommodation and food services (tourism)	210,000	0	0	0	210,000	0.12%
Activities of households as employers	18,000,000	1,365,000	0	0	19,365,000	10.73%
TOTAL	70,013,754	30,115,000	78,217,500	2,096,000	180,442,254	100.00%

Potential for scaling up

Motivations

- Monetary savings
- New market opportunities
- Compliance/regulations
- Access to essential services

Areas of scaling up

- **Agriculture:** waste to energy
- **Forestry:** reforestation, timber export
- **Energy:** RE (captive, utility scale generation), EE appliances (hotels, factories, homes),...

**Eg 200 MW solar PV
= \$ 200 M**

BARRIERS

Lack of awareness and information

- Only a few actors are aware that **waste or biomass can be used for electric generation** (e.g. through gasification);
- Poor awareness of high GHG emissions associated with **heavy-fuel based electric generation**;
- Lack of information on **potential financial savings** associated with EE measures; on the real merits and costs of RE

Policy and legal frameworks insufficiently enforced or lack clarity

- There is a **lack of regulations** (RE, green product certification, EE standards and labels, imported vehicles)
- Some policies or programmes were **not adopted** (NAMA on Energy Efficiency in the garment industry, EE policy)
- Some regulations **are loosely enforced** (Building Code, regulations on illegal logging and resource extraction, illegal fertilizers, building setback provisions)

Lack of skills and training on climate change related issues

- There is a **lack of technicians** specialized in Energy Efficiency
- There is no training on management of Renewable Energies
- Some government officials lack sufficient knowledge to effectively enforce regulations related to Climate Change

Access to finance

- **Small size and informal character of many companies** in Cambodia (no registration, no accounts, no collateral) hinders their ability to mobilize (climate) finance
- Most **FIs lack awareness on climate change, instruments to support “green’ investments**
- Most finance available from donors, but **not suitable for PS development**

Four main types of recommendations

- **Information policy:** raising awareness on climate change to influence behaviour. This includes awareness campaigns, information centres, etc.
- **Capacity Building:** building technical skills and enhancing operational capacities to improve private operators actions on climate change;
- **Regulation:** influencing behaviours through legality. This includes laws, legally binding targets, import and export restrictions, etc.;
- **Financing and economic instruments** means using prices to influence behaviour (taxes, price supports, etc.).

Energy

#1 Adopt a Renewable Energy Policy

Short-term action	Set a target of 10% (ex large hydro) of the electricity mix to be supplied from RE sources by 2020
Potential to reduce emissions or strengthen resilience	High as the share of coal in the power supply mix could reach 55% in 2050 according to some estimates
Government lead	MME, MOE
Implementing actors	Private sector developers/investors
Rationale	<ul style="list-style-type: none"> • The RGC has indicated investing in sustainable energy is a priority (NSDP, CCCSP, etc.) • Prices of some RE generation technologies such as solar have fallen so much as to reach cost-parity • Cambodia has a vast untapped potential for RE particularly for solar. • RE is key to enhancing security of supply (lower imports) and reaching access to electricity targets (70% of HH by 2030) • RE investment will bring additional FDI

#2 Support sustainable production and consumption of solid biomass

Short term action	Enforcement of strong and systematic fines on illegal woodfuels
Potential to reduce emissions or strengthen resilience	High on both mitigation (reduce GHG emissions from combustion of non-renewable biomass) and adaptation (sustainable and community-based management of natural resources, ecosystem restoration, sustaining off-season income generating activities for rural populations living in degraded forest buffer zones and heavily dependent on the forest...)
Government lead	MME
Implementing actors	Forestry Administration, MOE, MEF, MoC, MoI, MIH, coordinated by the NCSD. Private sector actors involved in the production and distribution of sustainable fuels and energy efficient devices. Donors and FIs
Rationale	1) support the establishment of sustainable biomass fuel value chains as alternative to illegal charcoal fuelling domestic cooking in urban areas and illegal woodfuels fuelling industries, mostly around main urban centers 2) reduce consumption of woodfuels (5.5 Million tons in 2014) by residential and industrial sectors

Energy efficiency, companies and households

#3 Adopt labeling and standards for electric appliances and energy-consuming products

Short-term action	Launch preparatory work on products to be included and minimum performance standards to be attained
Potential to reduce emissions or strengthen resilience	High
Government lead	MME, MOE
Implementing actors	RGC (enforcement), Suppliers, Households
Rationale	<ul style="list-style-type: none"> • Electricity consumption is growing fast, driven by growth. • As shown by the EU example, energy labels help consumers choose energy efficient products, while eco-design regulations (standards) require manufacturers to decrease the energy consumption of their products by establishing minimum energy efficiency standards. • Electric appliances and energy-consuming products such as air-conditioners are sold in the Cambodian market without labeling and standards. Labels and standards would result in the purchase of higher EE equipment, and life-cycle net gains for consumers (offsetting the possibly higher investment cost), regardless of associated carbon emission reductions. • This action is included in the EE Policy (2013).

#4 Sensitize and advise the household and business sectors about EE opportunities and technologies

Short-term action	Formally approve the National Policy, Strategy and Action Plan on Energy Efficiency in Cambodia
Potential to reduce emissions or strengthen resilience	H
Government lead	MME, MOE, MIH, NCSD
Implementing actors	Households and businesses
Rationale	<ul style="list-style-type: none"> • The population of Cambodia is generally not aware of the potential to save energy and reduce associated costs and how this can be done through behavioral changes or better equipment. • The (yet to be approved) draft national Policy on EE (2013) sets the objective to reduce the energy consumption by 20% or 1,190,7 ktoe in 2035, compared to the business as usual projections. • Energy costs represent a high proportion of total production costs for a number of sectors that are energy intensive, eg garments, cement, etc. Most companies particularly the smaller ones are poorly informed about the opportunities and available technologies to save energy.

#5 Encourage energy audits or adoption of energy management systems in business sectors

Short-term action	Adopt a regulation making energy audits mandatory in companies consuming over x of energy
Potential to reduce emissions or strengthen resilience	H
Government lead	MME, MOE
Implementing actors	Energy-intensive sectors
Rationale	<p>Same rationale as above.</p> <p>All relevant sectors (garment, rubber production, brick kilns, food processing, ice making and rice mills) have at least 20% energy saving potentials and particularly brick kilns can potentially save up to 70%. (Source; draft EE Policy).</p>

Low carbon and cleaner transport

#6 Promote the adoption of cleaner vehicles through regulations and economic instruments

Short-term action	RCG to commission a review of regulations and standards governing fuel quality and the pollution and efficiency of vehicles
Potential to reduce emissions or strengthen resilience	H
Government lead	MOE, MPWT
Implementing actors	Households, companies for freight vehicles
Rationale	<p>Transport is a fast growing sector as mobility needs increase and fossil fuels remain the prime source to meet the needs of the sector.</p> <p>Cambodia's fleet of vehicles is dominated by old, highly polluting second hand cars which are imported into the country without regulation. Quality standards for vehicle fuels are too low and highly emitting cars (eg 4x4) are treated like low-emitting vehicles.</p>

#7 Develop and implement a climate-friendly urban transport Policy in the larger cities

Short-term action	Elaborate sustainable urban transport master plan for Phnom Penh
Potential to reduce emissions or strengthen resilience	Medium
Government lead	MME, MOE
Implementing actors	Larger city administrations, private sector transport companies
Rationale	<ul style="list-style-type: none"> • Cambodian cities are growing fast. • Increased urban traffic (Tuk-tuk, cars, motorcycles) has resulted in higher GHG emissions, air pollution and congestion • Public urban transport would address all these issues but remains underdeveloped in large Cambodian cities.

Low-carbon more efficient waste management

#8 Promote climate friendly waste management systems

Short-term action	Create a framework (infrastructure, rules and regulations) for waste reducing, reusing and recycling
Potential to reduce emissions or strengthen resilience	High in short term
Government lead	MoE, Municipalities/khan, Ministry of Interior
Implementing actors	Industry players, HH (to a minor extent)
Rationale	<ul style="list-style-type: none"> • Industry (tourism, manufacturing, construction) waste (solid and water waste) is growing and will grow further => potential is high and growing. • Currently no infrastructure for waste sorting, re-use, recycle management system. • Private companies have high expectations, as waste is a growing concern for their sustainability plans. • Economic opportunity: waste management is a business in itself: value created from recycle waste (energy production, construction material, compost...) • Sub-decree on waste management exists (July 2015) but does not offer options for sorting, recycling

Sustainable Construction

#9 Incentivize sustainable building and construction sector

Short-term action	Strictly enforce building set-back provisions
Potential to reduce emissions or strengthen resilience	High
Government lead	MLUPC, MoE, Municipalities
Implementing actors	Construction players, IBC, Korea, Eurocham
Rationale	<ul style="list-style-type: none"> • Construction sector is growing in an unsustainable way (low quality material, low insulation power, no natural light => increase energy needs => increase GHG emissions). • Sustainable architecture available in Cambodia (quality local material, home country of bio-climatic construction). • Low enforcement of urbanism laws (set-back in particular), lack of transparency on construction permits • Case for good quality construction = energy but also money saving.

Sustainable tourism

#10 Support Green Hotel Certification

Short term action	Industry campaign to raise awareness on economic benefits of RE-EE-waste and boost adoption of low carbon technologies
Potential to reduce emissions or strengthen resilience	High
Government lead	Ministry of Tourism
Implementing actors	Hotel industry players
Rationale	<ul style="list-style-type: none"> • Hotel industry is big in Cambodia, growing, diverse in its approach to CC. International groups are advanced (environment policy), SMEs (most of the players) are far behind. • Precedents in SR, PNH, SIH • Strong potential for replication and domino effect. • Lack of awareness on the benefits of low carbon measures. • ASEAN green awards offers framework for improvement

Agriculture, forestry, fisheries, livestock

#11 Create a secure framework for private investment in NRM

Short term action	Accelerate adoption of zoning plans to ensure no encroachment of lands takes place Re-allocate a recently cancelled concession for sustainable production/integrated farming system
Potential to reduce emissions or strengthen resilience	High (link to carbon sink)
Government lead	MAFF, MoE
Implementing actors	Farmers, agri-businesses
Rationale	<ul style="list-style-type: none"> • Link between NRM and carbon sequestration • Current land use situation is improving but still unclear => risk for investors in NRM (reforestation, ELCs). • Investors need clear and transparent legal framework on land tenure and long term visibility to recoup investment in a long cycle production sector (10-70 years).

#12 Increase appeal for certified and zero deforestation supply chain

Short term action	Pilot champions' case to regain trust of reforestation companies Promote FSC forest and planted forest
Potential to reduce emissions or strengthen resilience	High
Government lead	FA/MAFF, MoE
Implementing actors	Reforestation companies, agri-businesses
Rationale	Degraded forests have the potential to reduce pressure on deforestation as part of a sustainable landscape plan Reforestation, agro-forestry and sustainable agri-business, if managed sustainably, have the potential to substantially increase the carbon sink FSC certification guarantees sustainable environmental and social management of forests Forest Stewardship Council, https://ic.fsc.org/en

#16 Support and consolidate a low carbon livestock sector

Short term action	<p>Adopt quality standards for the NBP to revive adoption rate</p> <p>Research further on animal inputs (feed, medication) as a way to lower emission from improved feeding practices</p>
Potential to reduce emissions or strengthen resilience	High
Government lead	MAFF, MoE
Implementing actors	Farmers, agri-business
Rationale	<ul style="list-style-type: none"> GHG emissions from livestock is expected to grow due to substantially increasing demand for livestock products, in particular meat, linked to the growth in population and real GDP per capita

#17 Embed PES in the legal framework

Short term action	Create a user-friendly toolkit to show benefits of PES within the framework of the Environmental Code and EIA law.
Potential to reduce emissions or strengthen resilience	High
Government lead	MAFF, MME, MOE, CDC
Implementing actors	Private sector developers/investors, HH
Rationale	<ul style="list-style-type: none"> • Natural Capital valuation is a growing field of interest for big corporate players active in NRM (apparel, commodity, brewery, oil palm...). A standard protocol is under development. • Cambodia has a high carbon sink due wealth in NR, but is threaten by growing and sporadic economic activity. • PES is an option to make private actors contribute to conservation and reduce related GHG emissions. It has the benefit to anticipate and manage climate risks pro-actively, rather than repair damage at a higher cost. • PES is mentioned in numerous legal texts, but there is neither clear nor transparent framework that would encourage private investments.

Cross-sector

#18 Create framework for enhanced PS-RGC dialogue on Climate change

Short term action	Add climate friendly solutions to the existing CDC Qualified Investment Projects (QIP) list 1 st year PS workshop to keep momentum running.
Potential to reduce emissions or strengthen resilience	High
Government lead	NCSD
Implementing actors	Companies, CCCA (in partnership with Chambers of commerce, TWGs, industry association (CRF, CAIA, GMAC, CAMFEBA, MFI association, Banking association, Hotel association...))
Rationale	<ul style="list-style-type: none"> • Very little engagement with PS on CC, although RGC need PS to fight CC • Uncoordinated PS climate related interventions, while they could benefit from information sharing, technology solutions transfer • Climate solutions are cross-sectorial => benefits to make people meet

Expand supply of green finance

#19 Develop dedicated loan programme for small- and medium sized EE projects

Short term action	Request DFIs and donors active in Cambodia to explore interest in and feasibility of dedicated EE credit line for Cambodian SMEs supported by a technical assistance package
Potential to reduce emissions or strengthen resilience	H
Government lead	MOE, MIM
Implementing actors	Commercial banks
Rationale	<ul style="list-style-type: none"> • 70% of SMEs have an interest in EE & RE solutions, • Because most SMEs do not operate as registered companies and do not have proper financial records, banks impose onerous collateral requirements (in terms of the loan to value, both banks and MFIs usually finance 50% of the collateral value when the owner of the business holds a soft title and up to 70% in case of a hard title; but many SME owners do not own property or do not have hard titles for their properties) and charge high interest rates (in the banking sector, the interest rates range from 10 to 12% per annum. MFI interest rates range from 14 to 30% yearly). • “Energy efficiency/ renewable energy investing and financing is a relatively new area for both the SMEs and the financial institutions with some small isolated initiatives started by some financial” institutions” (Meet-Bis, 2013).

#20 De-risk green lending to SMEs/households

Short term action	Explore feasibility of a national guarantee fund (or facility)
Potential to reduce emissions or strengthen resilience	H
Government lead	MOF, MOE, MIM
Implementing actors	Local FIs, Existing or new body to host and operate the guarantee scheme
Rationale	<ul style="list-style-type: none"> • While recommendation #20 would expand liquidity (through a DFI credit line) for green loans, a guarantee scheme would reduce perceived risk to local FIs. • The collateral requirements are particularly daunting for the smaller borrowers (see above). • This results in a higher cost of borrowing, and discourages many small companies from borrowing. • A dedicated low-carbon guarantee fund could facilitate lending by reducing or eliminating those barriers for the smaller companies. • Such guarantee funds typically achieve a higher ratio of mobilization of additional resources compared to grants and loans.

THANK YOU!

Full report available at: www.camclimate.org.kh

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