



Advancing climate-resilient  
low emission development  
around the world

# Assessing and communicating benefits of INDCs



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**[www.ledsgp.org](http://www.ledsgp.org)**

# Session overview

Through country case studies and other materials, this session will provide an introduction to:

- some of the tools that countries have used to assess the expected benefits of their INDCs;
- how the results have been communicated with stakeholders; and
- why this will be important in future implementation of contributions.

# Format of the session

10min	Lachlan Cameron	Introduction - INDCs and benefits	ECN
15min	Lupe Guinand	The case of Peru	Libelula / PlanCC
15min	Moisés Álvarez	The case of the Dominican Republic	National Council on Climate Change
15min	Dr. Alain Serge Kouadio	The case of Ivory Coast	Ministry of Environment and Development
15min	Imane Chafiq	The case of Morocco	GIZ / 4C Maroc
40min	Breakout session		
10min	Feedback from breakout groups		

# INDCs and benefits – introduction

Lachlan Cameron

LEDS Global Partnership 2015  
Annual Workshop – Punta Cana  
15<sup>th</sup> October, 2015

# Contents

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- Introduction to ECN
- INDCs refresher
- Benefits and INDCs
- Tools overview
- Country examples
- Independent studies

# Energy research Centre of the Netherlands (ECN)

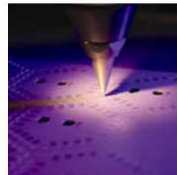


## ECN Policy Studies

- Research NGO since 1955 – not for profit
- Over 500 staff in seven research areas
- 60 staff in Policy Studies unit
- Main think tank for Dutch government on energy and climate



Policy Studies



Energy Engineering



Environment



Wind Energy



Solar Energy



Biomass



Energy Efficiency & CCS

## Global Sustainability

Dedicated team working on international issues, with the mission to help mobilise investment by promoting low carbon policies and measures.

Our focus is on four key themes:

Policy and strategy development

Increased policy effectiveness

Scoping and prioritisation

Renewable energy deployment

Clients include: European Commission, UNFCCC, UNEP, UNDP, CDKN, DFID, GIZ, BMUB, World Bank and the IPCC  
Experience working in: Argentina, Brazil, Columbia, Ghana, Indonesia, Kenya, Kuwait, Mexico, Mongolia, Pakistan, South Africa, Thailand

# INDCs refresher

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- Under the UNFCCC, countries “in a position to do so” submit intended nationally determined contributions (INDC)
- Outline what post-2020 climate actions they intend to take
- The purpose of INDCs :
  - An urgent need to reduce emissions
  - Build trust that countries do their part
  - Give clarity, transparency and understanding
  - Enable assessment of whether we would meet the global 2°C goal
  - Foster a dialogue on ambition and equity

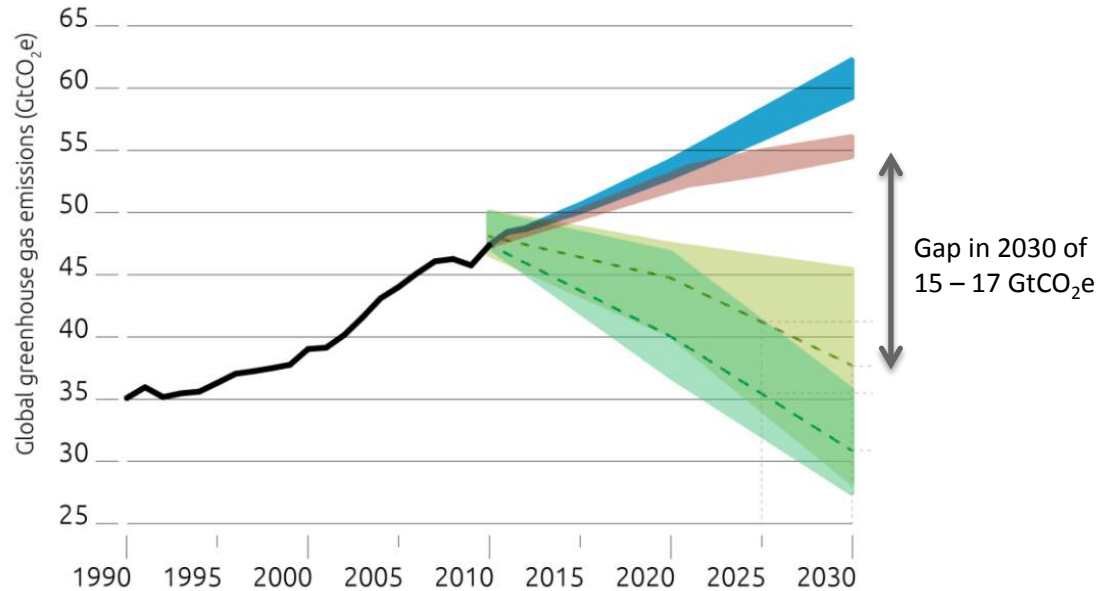


Submissions to date: 119






Parties represented: 147



# INDCs current status



**Understanding and demonstrating benefits of climate action will be vital in raising ambition**

-  Historical emissions, incl. LULUCF
-  Current policy projections (CAT assessment)
-  Pledges and INDCs (CAT assessment)
-  2°C consistent median and range
-  1.5°C consistent median and range



# Benefits and INDCs

- Sustainable development benefits are a key driver for countries to engage in the development of INDCs
- INDCs are an opportunity to communicate the benefits of climate action; showing how to reach national development objectives in the most efficient way
- Can be done in the INDC process directly, or part of the plan/strategy that informs the INDC
- When looking at mitigation only, costs are often overestimated when there is not a thorough assessment of different benefits



International beta

## the guardian

### Limiting climate change could have huge economic benefits, study finds

Stopping global warming at two degrees would create nearly half a million jobs in Europe and save over a million lives in China, analysis of emissions pledges says



A commitment by China to limit a rise to 2C would create 2m jobs, the analysis says. Photograph: Stringer/Reuters

Major economies would boost their prosperity, employment levels and health prospects if they took actions that limited global warming to 2c, according to the first analysis of emissions pledges made before the UN climate summit in Paris later this year.

Europe has promised a 40% emissions cut by 2030, compared to 1990 levels - and

# A broader shift

Moving from the MDGs to the SDGs, climate change is now a distinct topic (Goal 13)

New Climate Economy identifies 10 key areas for stronger climate action which also bring significant economic benefits



# Benefits are hugely varied and country determined



1. Comprehensive well-being	2. Comprehensive wealth	3. Comprehensive wealth	4. Natural system & ecosystem services	5. Innovation and technology progress	6. Socio-economic context
<p><b>Economic</b></p> <ul style="list-style-type: none"> <li>Increased GDP, both per sector and per capita; higher median income and lower unemployment</li> <li>Improved terms of trade/competitiveness</li> <li>Energy, food and other resource security</li> <li>Increased ecc</li> <li>Reduced risk damage</li> </ul> <p><b>Improved foreign currency reserves</b></p>	<p><b>Economic</b></p> <ul style="list-style-type: none"> <li>Increased stocks of physical capital</li> <li>Reduction of stranded assets</li> <li>Resilience of assets to natural hazards</li> <li>Increased resilience to exogenous shocks (price)</li> </ul>	<p><b>Economic</b></p> <ul style="list-style-type: none"> <li>Land-use efficiency (or yields), including both large and small scale production</li> <li>Water efficiency (e.g. reduced leakage, advanced irrigation)</li> </ul>	<ul style="list-style-type: none"> <li>Soil retention or replenishment (e.g. reduced land degradation or soil run-off)</li> <li>Natural resource production (e.g. timber and medicinal plants)</li> <li>Fresh water flow and purification (e.g. through better forest/vegetation cover)</li> <li>air and water pollutant removal</li> <li>buffers against extreme events</li> <li>s and genetic diversity</li> </ul>	<ul style="list-style-type: none"> <li>Engineering, science, and technology capacity, especially in clean/green related areas</li> <li>Investment in RD&amp;D, especially in technology areas with large potential co-benefits and spill-overs</li> <li>Legal frameworks for intellectual property rights</li> <li>Technical standards for technologies with large network effects</li> <li>Access to risk capital for entrepreneurs, especially those with triple bottom-line businesses</li> </ul>	<ul style="list-style-type: none"> <li>Engineering, science, and technology capacity, especially in clean/green related areas</li> <li>Investment in RD&amp;D, especially in technology areas with large potential co-benefits and spill-overs</li> <li>Legal frameworks for intellectual property rights</li> <li>Technical standards for technologies with large network effects</li> <li>Access to risk capital for entrepreneurs, especially those with triple bottom-line businesses</li> <li>Increased financial sector lending, especially to sectors with high capital needs</li> </ul>
<p><b>Environmental</b></p> <ul style="list-style-type: none"> <li>Increased preservation of natural environments</li> <li>Reduced pollution/contamination</li> <li>Reduced waste landfilled</li> <li>Increased biodiversity</li> <li>Reduced risk of catastrophic environmental damage (like climate change)</li> </ul>	<ul style="list-style-type: none"> <li>Land/soil stocks (e.g. agriculture, coastal zones)</li> <li>Water (slow- or non-replenishing)</li> <li>Atmospheric assets (ozone layer, low GHG atmosphere)</li> <li>Fish stocks</li> <li>Natural raw material stocks (e.g. forest timber)</li> <li>Other natural resources</li> </ul>	<ul style="list-style-type: none"> <li>Mineral and other natural resource use efficiency (e.g. iron and steel, clinker, timber, fertilizers, etc.)</li> <li>Food-use efficiency (e.g. reduced food waste)</li> <li>Space-use efficiency (e.g. to reduce travel, etc.)</li> </ul>	<p><b>Increased employment, especially among vulnerable populations</b></p>		
<p><b>Social</b></p> <ul style="list-style-type: none"> <li>Poverty reduction</li> <li>Improved access/affordability of basic</li> </ul> <p><b>Reduced income inequality</b></p> <ul style="list-style-type: none"> <li>Equitable access to resources and opportunities (for vulnerable groups)</li> <li>Civil and/or political participation</li> <li>Reduced vulnerability to ecological risk</li> </ul>	<p><b>Social</b></p> <ul style="list-style-type: none"> <li>Improved education and literacy levels</li> <li>Improved health levels</li> </ul>				

# How are countries determining the scope of their INDC?

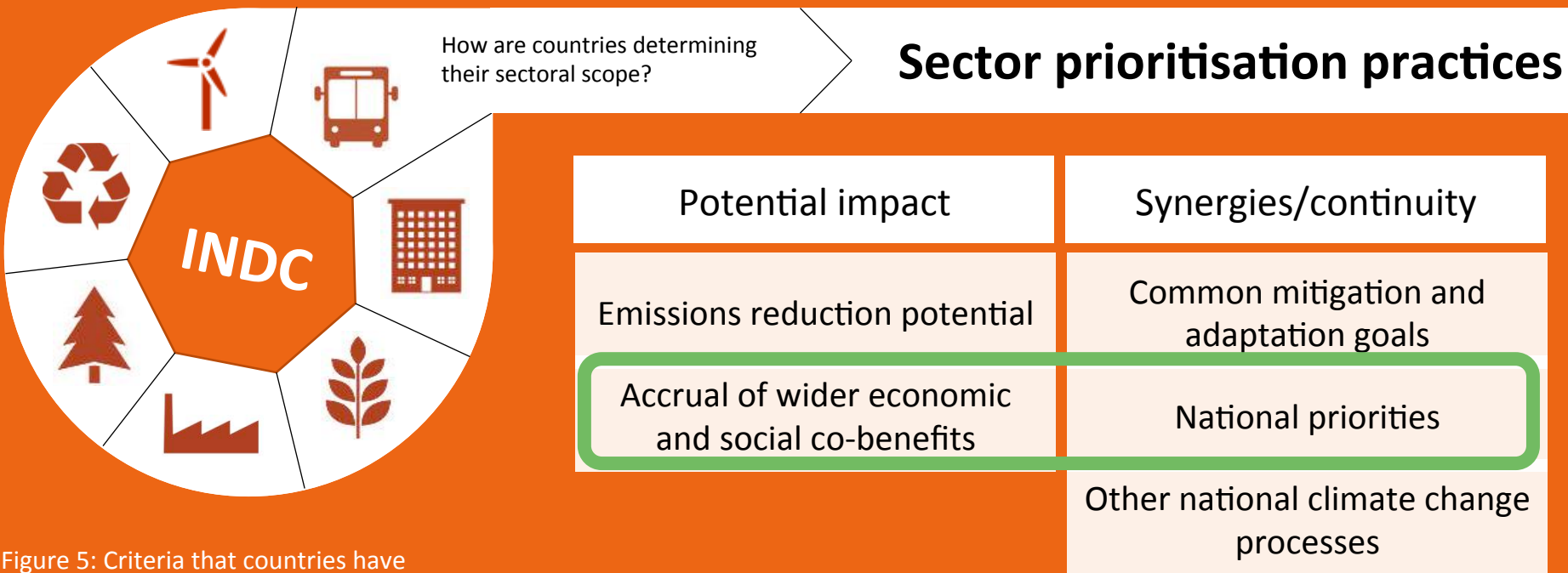


Figure 5: Criteria that countries have used to prioritise sectors for their INDCs

# Why determine benefits?

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- Make a case for prioritizing sector and measures to include in the INDC
- Increase the willingness of decision makers and stakeholder to increase ambition
- Mobilize sectoral departments and economic actors
  - Increase buy-in, engagement and leadership amongst stakeholders and ministries
  - Justify actions that face resistance
  - Promote ownership of climate change actions in various ministries
  - Make trade-offs clear – identify winners and losers



# Why determine benefits? (cont.)

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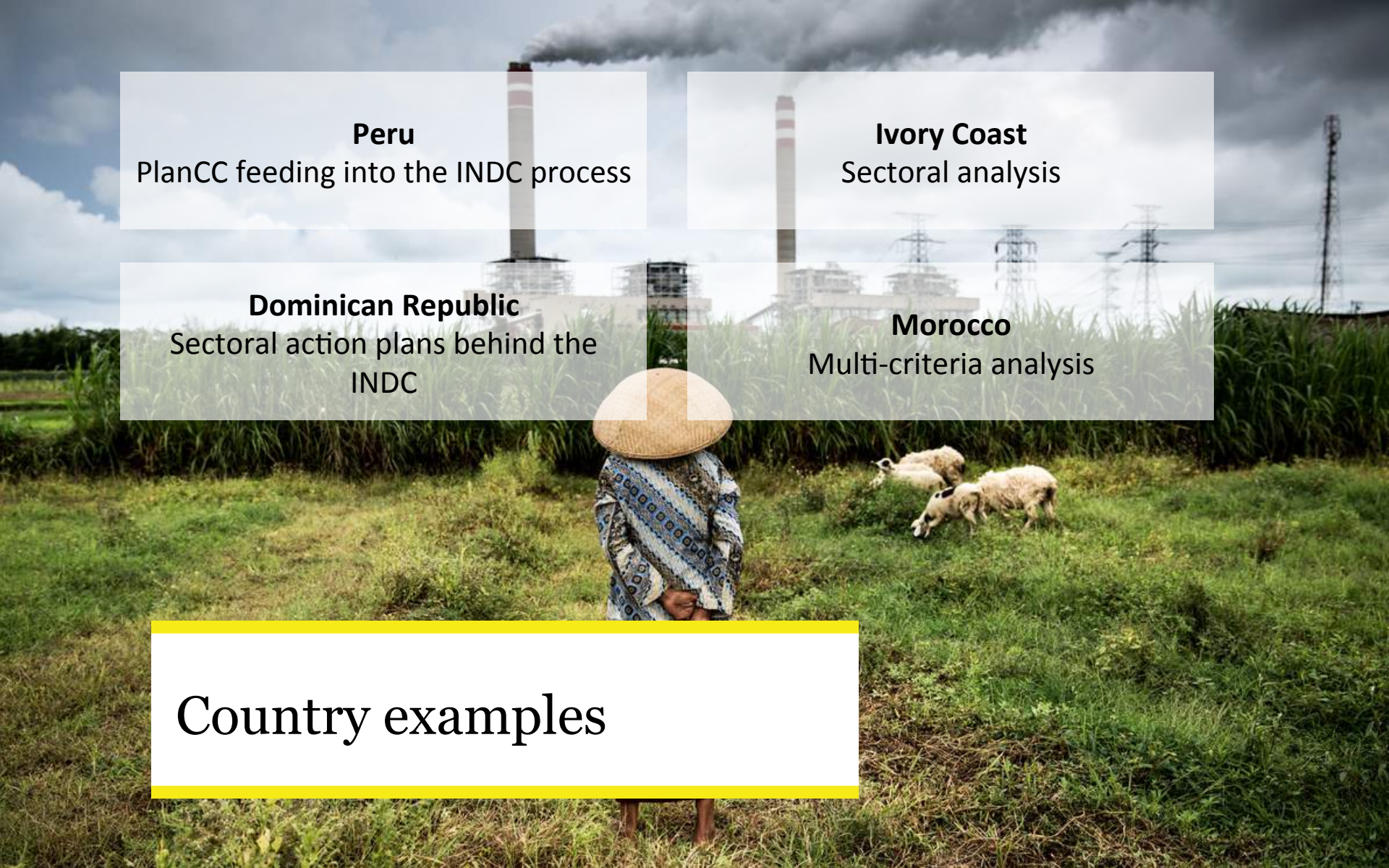
- Link INDC measures to national development goals and find synergies
- Link INDC measures to other international goals
  - Rio Conventions or Sustainable Development Goals
- Attract international finance
  - Demonstration of social, economic and environmental benefits to potential funders
  - Demonstration of country ownership/ leadership



# Tools for assessing benefits

	Individual Issue (e.g. low carbon energy, sustainable agriculture)	Multiple Issues (e.g. sustainable growth / natural resource protection)
<b>Bottom-up or option-level impact analysis</b>  (most applicable for action-based INDCs)	<ul style="list-style-type: none"> <li>• Cost-effectiveness analysis</li> <li>• Marginal abatement cost curves</li> <li>• Cost-benefit analysis</li> <li>• Accounting models (e.g. EFFECT, LEAP, MEDEE, 2050 Pathways)</li> <li>• Sector-based and geographical-based agri-environmental frameworks</li> </ul>	<ul style="list-style-type: none"> <li>• Cost-effectiveness analysis</li> <li>• Multi-attribute analysis</li> <li>• Multi-criteria analysis</li> <li>• Multi-purpose spatial planning (GIS-based) models</li> <li>• Land-use models (e.g. CLUE)</li> <li>• Urban energy systems</li> </ul>
<b>Top-down or system-level impact analysis</b>  (most applicable for outcome-based INDCs)	<ul style="list-style-type: none"> <li>• Optimization approaches</li> <li>• Energy system models (e.g. Markal, MESSAGE)</li> <li>• Computable general equilibrium models</li> <li>• Dynamic stochastic general equilibrium models</li> <li>• Integrated Assessment Models Simulation approaches</li> <li>• Energy system models (Energy 20/20, POLES)</li> <li>• Macro-econometric models (e.g. E3MG)</li> <li>• Ecological macroeconomic models</li> <li>• Agent-based models</li> <li>• System dynamics models</li> </ul>	





**Peru**  
PlanCC feeding into the INDC process

**Ivory Coast**  
Sectoral analysis

**Dominican Republic**  
Sectoral action plans behind the  
INDC

**Morocco**  
Multi-criteria analysis

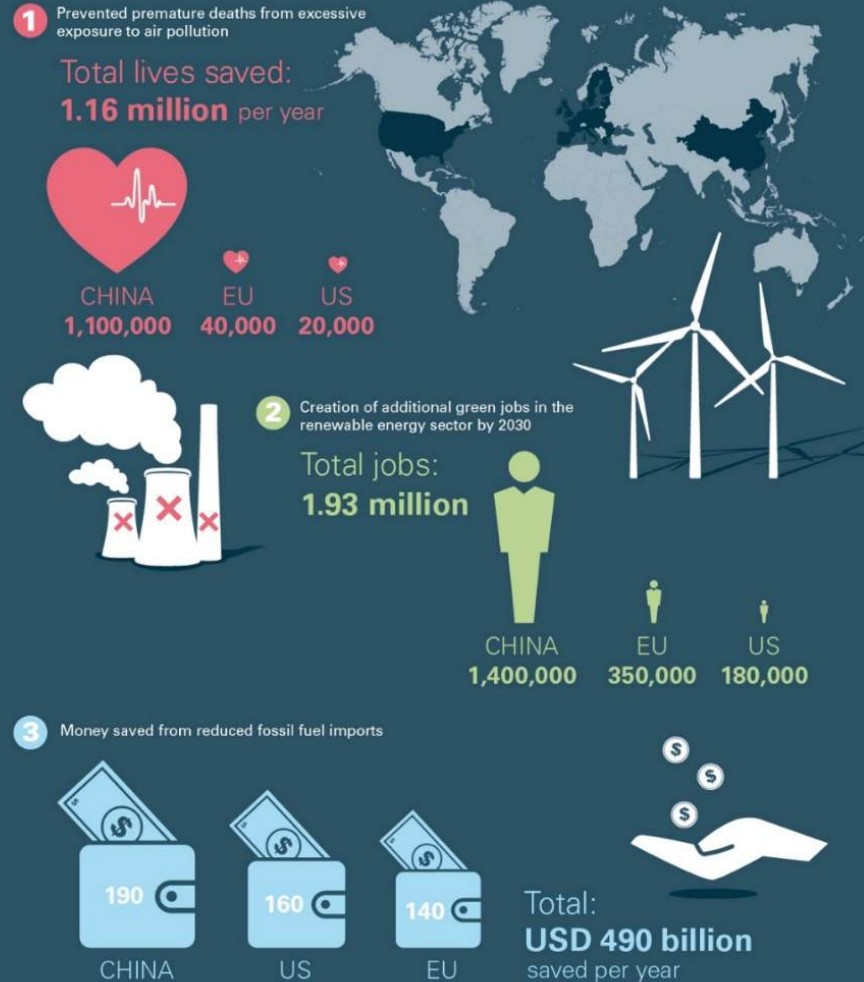
**Country examples**

# Independent studies

- New Climate Institute study
- US, China, EU, Canada, Japan, Chile, India and South Africa
- Considered two levels
  1. Submitted INDC targets
  2. 100% renewables in 2050 scenario
- Assessed three benefits
  - Cost savings from fossil fuel imports
  - Premature deaths from outdoor air pollution
  - Creation of green jobs in domestic renewable energy
- 2°C compatible pathway has up to 10 times the benefits for countries

## Co-Benefits of Climate Action

Co-benefits which can be untapped by scaling up climate action to meet a 100% renewable energy pathway in China, the US and Europe



# Thank you

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# Breakout session

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- Each table assign one reporter to fill in the template
- Discussion questions (also on the template):
  - Were benefits used in selecting the scope of your INDC? How?
  - Were benefits assessed: 1) in the INDC process; 2) in other inputs to the INDC?
  - If benefits were not considered, why was that?
  - What tools were used and were these appropriate to your needs?
  - Did you communicate benefits associated with the INDC and how?
  - What more would you like to do to understand benefits of your INDC, and in the future during implementation?
  - What tools or assistance is missing? How could the LEDS GP help?
- What lessons or insights can you take from the three country case studies? (good practices)
- At the end of the breakout session (after 45min) – briefly report back on a few interesting stories about how benefits are being assessed and used per table

## Session Title: Assessing and communicating benefits of INDCs

### Group members (countries):

### Selected challenges discussed:

- How were benefits used in selecting the scope of your INDC?
- Were benefits assessed: 1) in the INDC process; 2) in other inputs to the INDC?
- If benefits were not considered, why was that?
- What tools were used and were these appropriate to your needs?
- Did you communicate benefits associated with the INDC and how?

### Good practices and lessons for overcoming these challenges

What more would you now like to do in your home country to understand benefits of your INDC?

What tools or assistance is missing? How could the LEDSGP help?

Can an organisation at the table offer support? How?



# ECN – INDC and NAMA support

## ECN experience on NAMAs

- In-country experience in developing concrete NAMA proposals
- Assistance for attracting implementation funding.
- Convene stakeholders on NAMA prioritisation and design
- Robust analyses on costs and benefits, mitigation potentials, feasibility, financial risks, and business models
- ECN supports the UNFCCC Secretariat with their NAMA Day 2015

## ECN experience on INDCs

- Supported the development of the Pakistan INDC (with IISD)
- Supported the development of the Mongolia INDC (with NewClimate)
- Indonesia: Technical analysis INDC for the power sector

## What we offer:

- NAMA and INDC trainings for various audiences
- Practical assistance to conceptualise and develop NAMAs and refine INDCs
- Thought leadership on the concept of NAMAs and INDCs, bringing insights to international dialogues, reviews, and workshops
- Comparative case studies, country profiles, and policy briefs
- Publications on issues such as development impacts, finance, benefits, ODA, and sectoral priorities

Highlighted project: **MitigationMomentum**

*Encourage learning on NAMA development, and assist selected countries with developing a NAMA proposal ready for finance*

[www.mitigationmomentum.org](http://www.mitigationmomentum.org)

funded by IKI/BMUB





# Assessing and communicating benefits of INDCs: the case of Peru

Lupe Guinand

*LEDS Global Partnership 2015 Annual Workshop*

*Implementing LEDS: Innovation and Good Practices*

Punta Cana, October 16th, 2015



## Questions for this session:

1. What types of INDCs were submitted ?
2. How was the scope of which benefits and impacts to consider decided?
3. How were these benefits and impacts assessed? What tools or methods were used?
4. How were the results of this process communicated and used?
5. How will the results be used and how will they be relevant to implementing the INDCs in the future?

# Content

- Peru's submitted INDCs
- Relationship between Peru's INDCs and the PlanCC project
- Identifying and communicating cobenefits and impacts: PlanCC phase 1
- Assessing and quantifying cobenefits: tools and methods
- Conclusions

# Presentation of Peru's Intended Nationally Determined Contributions (iNDCs) in the perspective of the New Climate Economy

Presented by Minister of Environment Manuel Pulgar Vidal  
and Sir Nicholas Stern in Lima

October 7th, 2015

PERÚ

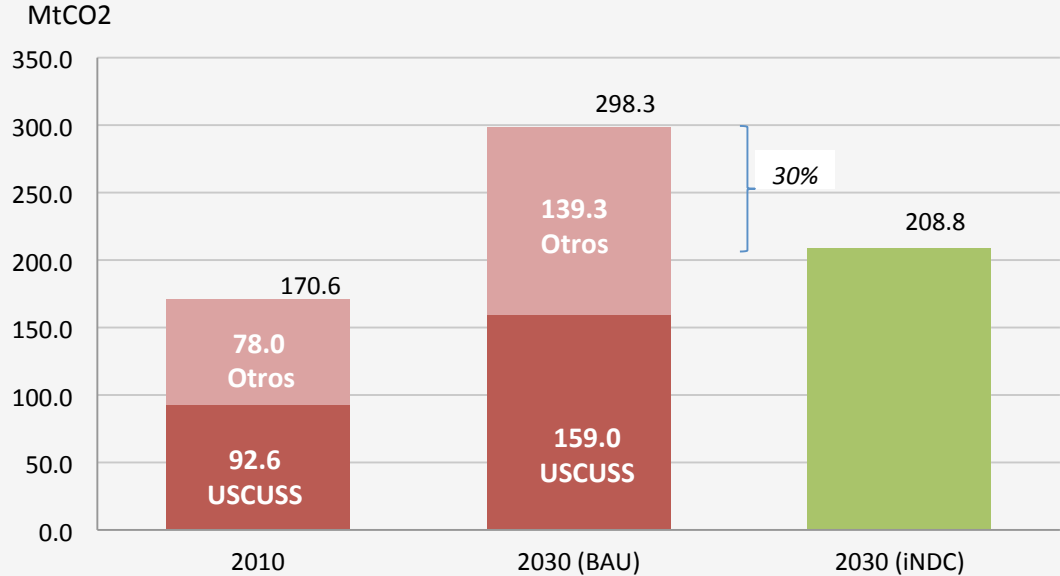
Ministerio  
del Ambiente



# PERU INDC MITIGATION COMPONENT

↓ **30% compared to BAU in year 2030**

↓ **20% Not conditioned**  
↓ **10% Conditioned**



## Scope

- National

## Methodology

- IPCC
- Sectorial dynamics + GDP and population projections
- Considers LULUCF (emissions and removals)

## Ambition and fairness

- Low share of emissions now and historically
- Low emissions per capita.
- High vulnerability

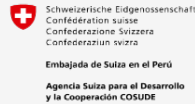
## Market mechanisms

- No purchases of emissions reductions
- Considering selling emissions reductions if it is not an obstacle for INDC compliance

# Relationship between Peru's INDCs and the PlanCC project

# PLANCC


PLANIFICACIÓN ANTE EL CAMBIO CLIMÁTICO



# INDC Consultation Process in Peru



- ❑ May to July 2015 → 664 participants, 513 institutions, 25 regions
- ❑ 5 macro-regional workshops and 23 meetings with business associations, indigenous people representatives, youth organizations, renewable energy enterprises, universities and research centers, local governments, NGOs, trade unions, Gender organizations, general public, actively commented the proposal.



# Identifying and communicating cobenefits during phase 1 PlanCC



## Co-benefits

Local benefits of climate change mitigation policies/ actions (beyond GHG reductions). These benefits can range from improved air quality, to cleaner technologies, to better jobs, improved competitiveness

### Social

- Better health



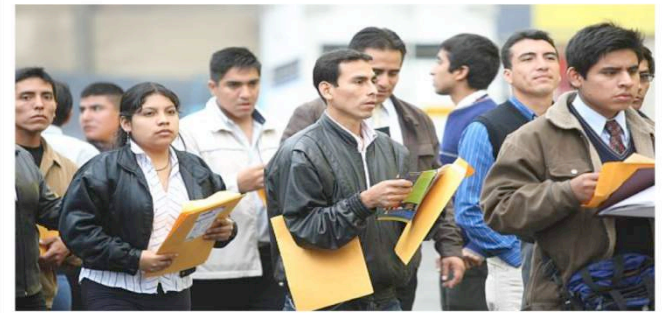
### Environmental

- Less pollution



### Economic

- More and better jobs





## Methods:

1. Qualitative approach: Expert judgement. Multicriteria analysis.
2. Computable General Equilibrium Model (CGE) to project mitigation scenarios
3. Consultation process to choose Sustainable Scenario

# Expert judgement

National experts identified and prioritized cobenefits for the 77 mitigation options analyzed by PlanCC in 5 sectors: Energy, Forestry, Agriculture, Transport, Waste, Industrial Processes

	REDUCCION DEL RATIO DE CLINKER EN PRODUCCION DE CEMENTO 1	SUSTITUCION DE CARBON MINERAL POR COMBUSTIBLES ALTERNATIVOS EN HORNOS PARA FABRICACION DE CLINKER 2	SUSTITUCION DE CARBON MINERAL POR COMBUSTIBLES ALTERNATIVOS EN HORNOS PARA FABRICACION DE HIERRO Y ACERO 3
Empleo y Competitividad	+1	+1	0
AMBIENTAL	+2	+2	+2
SALUD	+1	+1	+2
Tecnología	+1	+1	+1

## DESCRIPCIÓN

Esta medida consiste en la combinación de diferentes fuentes de Recursos Energéticos Renovables (RER) no convencionales e hidroenergéticos para la generación de electricidad a nivel nacional desde el año 2013. De esta manera, la participación de las fuentes de energía del Sistema Eléctrico Interconectado Nacional (SEIN) sería: RER 24%, hidroeléctrica 59% y térmica 17%.

El porcentaje de participación objetivo de RER correspondería a un 20% más de lo que está establecido actualmente mediante la ley de promoción a la generación de la electricidad con RER. Para el año 2050, la capacidad instalada y la generación de electricidad total requerida por el país, sería de 48,000 MW y 246,400 GWh, respectivamente. En dicho año la capacidad instalada y la generación de energía proveniente de fuentes renovables no convencionales sería de 16,324 MW y 58,165 GWh; respectivamente.

## CO-BENEFICIOS

- Mayor seguridad energética y confiabilidad.
- Diversificación de la matriz energética.
- Desarrollo de la industria nacional de equipos más eficientes.
- Uso eficiente del recurso energético (reducción del costo de la energía).
- Impacto ambiental y sostenibilidad.
- Creación y mayor cobertura de electrificación rural en regiones y territorios no atendidos.
- Mayor valor agregado por creación de mercado de biomasa de residuos agrícolas y forestales.
- Mayor disponibilidad de reservas de fuentes fósiles no renovables.

## CONDICIONES HABILITANTES

- Incrementar la frecuencia de subastas y que el porcentaje de contribución a la generación de electricidad con energías renovables sea mayor al 5%.
- Incentivos tributarios: depreciación acelerada y recuperación anticipada del IGV.
- Incremento de la tarifa de electricidad.
- Desarrollo de estudios de cuantificación de potencial.

### COSTO MARGINAL

**- 60.44**  
Nuevos Soles / TCO<sub>2</sub> eq.

Costo de implementación de la medida por tonelada evitada de CO<sub>2</sub> equivalente (TCO<sub>2</sub> eq.). El valor es positivo cuando implica un costo y negativo cuando implica un ahorro o ingreso.

### POTENCIAL DE MITIGACIÓN

2013 ▶ 2050

Cantidad de CO<sub>2</sub> evitado durante todo el periodo:

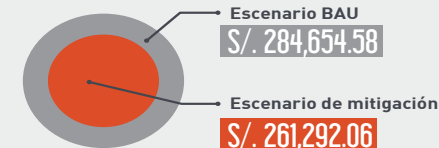
BAJO: <10 MTCO<sub>2</sub> eq.  
ALTO: >40 MTCO<sub>2</sub> eq.

**386.55**  
MTCO<sub>2</sub>eq.

La reducción de emisiones proviene por el desplazamiento de la generación térmica por la generación de electricidad procedente de recursos renovables, dado su prioridad en el despacho de electricidad durante el periodo 2013 al 2050.

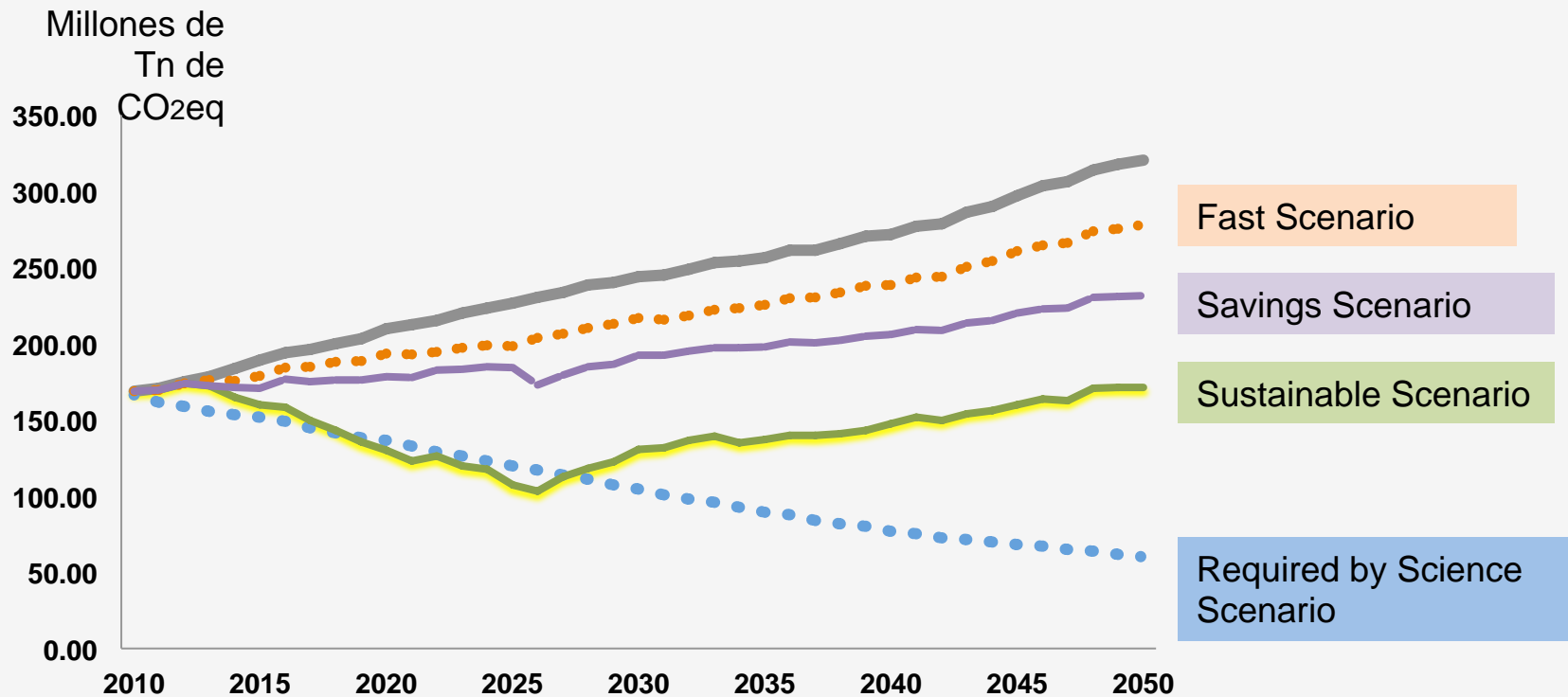
### COSTOS DE IMPLEMENTACIÓN\*

\*Millones de Nuevos Soles



Los costos incluyen la inversión en generación, transmisión y distribución; la operación y mantenimiento, los combustibles y el costo de transacción. En la estimación de los costos del escenario BAU se consideró una participación del 5% de energía renovable en el sistema.

## 2. Analysis of Sustainable Scenario



*Will it be valuable for Peru to promote low carbon emission development?*

**Yes...** according to the analysis, due to  
7 reasons



# 1. Generates new investment projects

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Investment  
7,300 million soles

- Equivalent to 26% of “Proinversión” portfolio
- 2/3 could be mobilized by the private sector
- Main opportunities: **Energy and Transport**



## 2. Generates savings and improves competitiveness

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### Cement

10% de annual savings by replacing Clinker (S/. 17,455 MM)

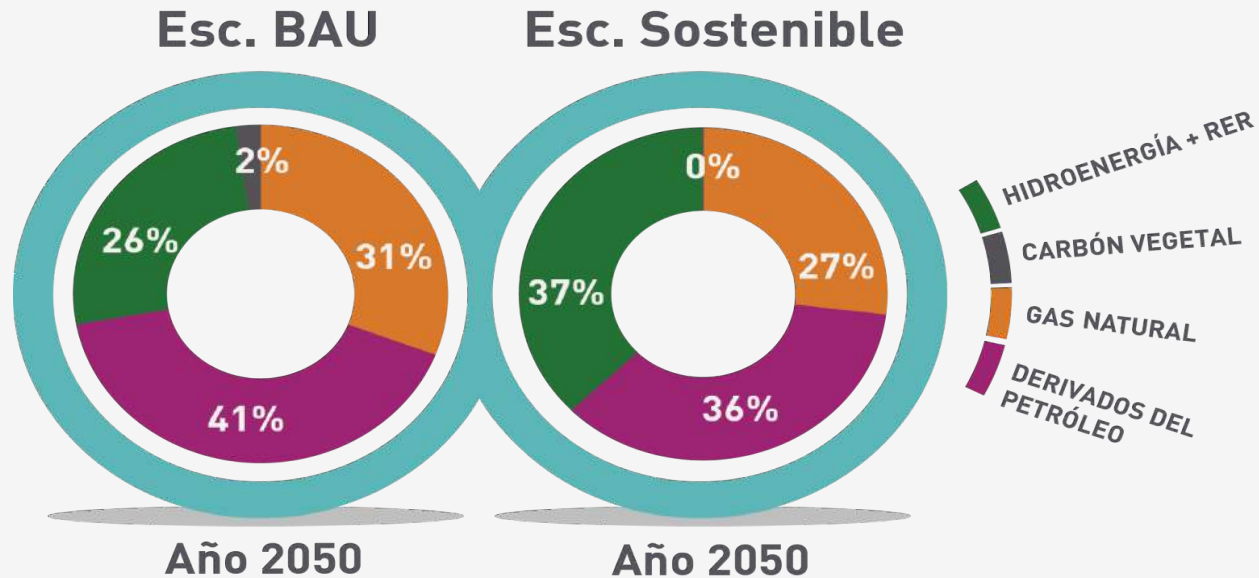


### Hybrid vehicle

47% annual savings compared to using fuel

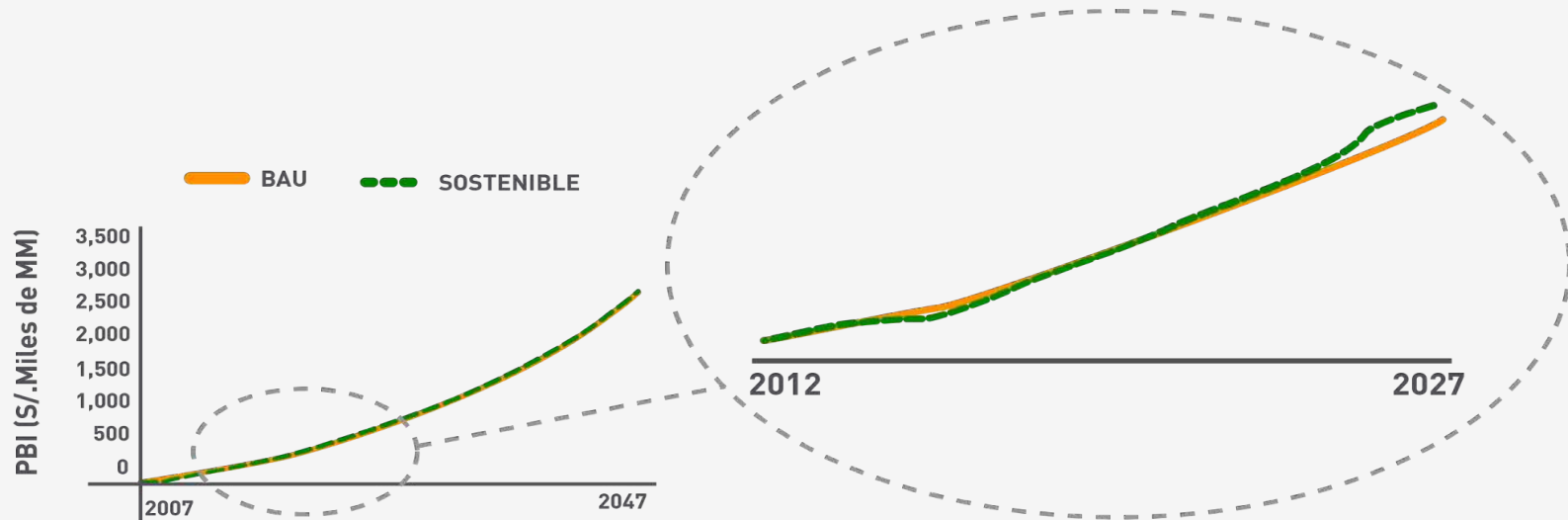
- Improving competitiveness due to projects promoting technological innovation and better business practices.

### 3. Secures better energy security



- Sustainable Scenario 2050: Increasing participation of renewable energy + hydroenergy
- More diversified energy matrix and increases energy security
- Perú will be energetically more efficient. Less energy to generate same level of development

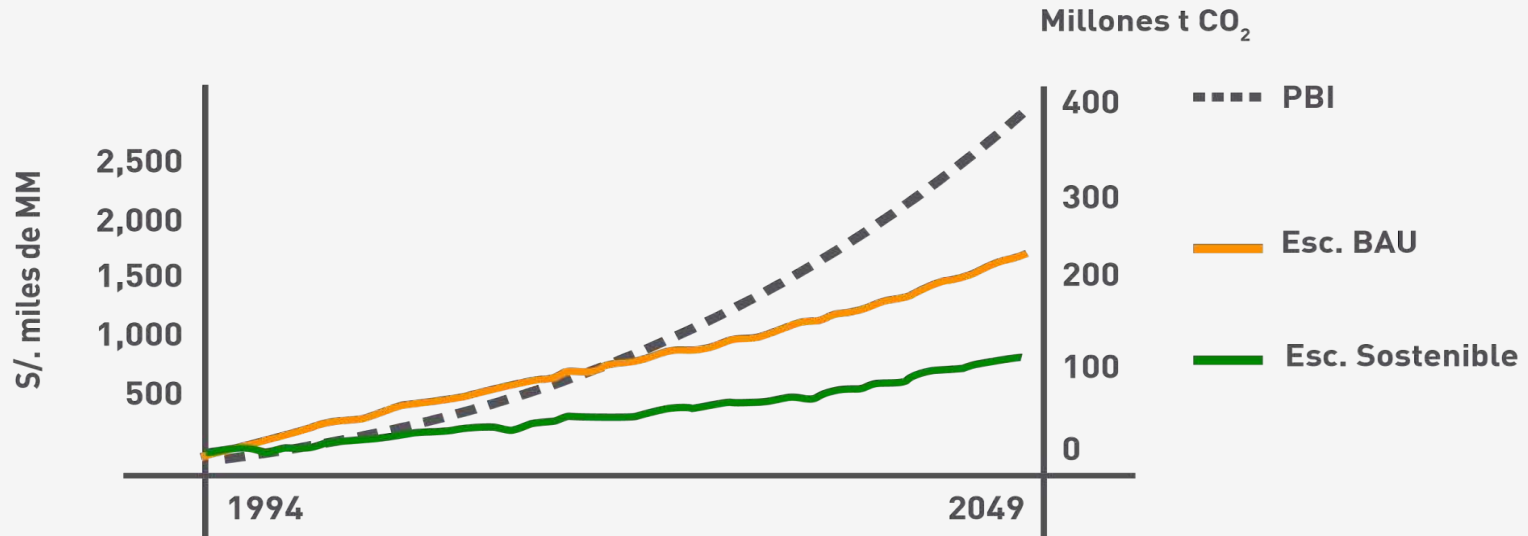
## 4. Increases GDP in the medium term



- Sustainable Scenario: From years 2022 to 2050, GDP would grow annually between 0.3% and 0.8% (additionally to BAU projections)
- 

Computable General Equilibrium Model (CGEM).

## 5.Reduces emissions,improves env. quality



2010 - 5.7 t per capita  
capita

2050 - 8 t per

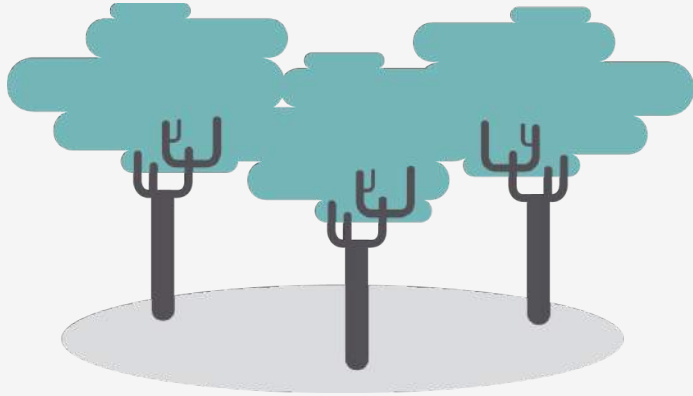
2050 - 4.3 t per

capita

- Chile 3.6 t ( 2006); Colombia 4.2 t ( 2004), Costa Rica 2 t ( 2005).

## 6. Increases the value of forests

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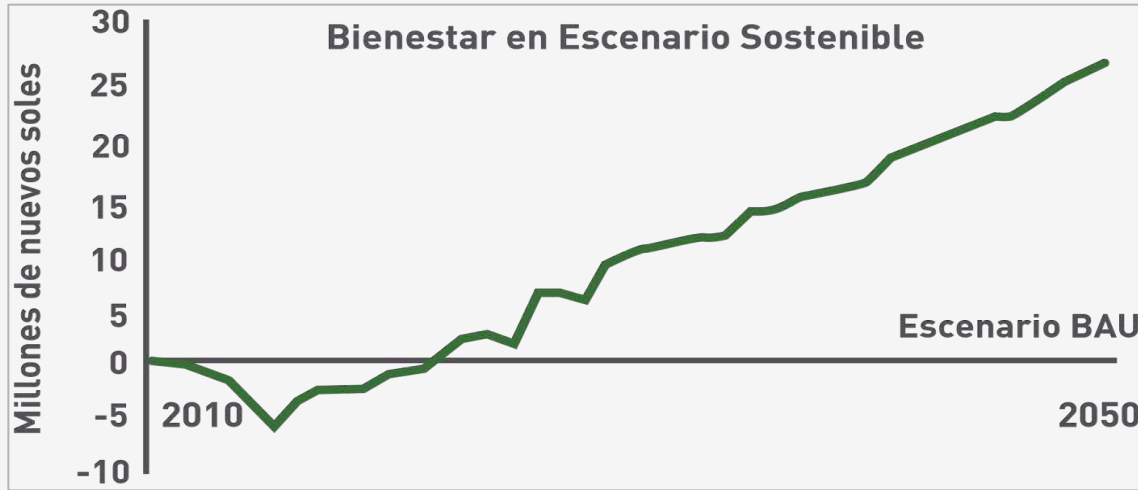


Provides value to 1/2 million hectares of forests through reforestation and agroforestry projects

Generates additional income of 11,900 million soles through sales of timber, cacao, coffee

- The lost of 2.4 million hectares of primary forest will be avoided

## 7. Improves quality of life



Improves quality of life in the medium term



2050 → 60% increase of urban population. 180% increase in solid wastes.

Sustainable Scen: adequate waste disposal in landfills improves from 38.8% to 51%




Travel time reduced in Lima



## **Results Phase 1 PlanCC:**

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- The results of phase 1 indicate that it will be valuable for Peru to promote a low emissions development, because in addition to reducing GHG emissions, there would be new investments, greater energy security, savings and improved competitiveness, better environmental quality without affecting economic growth in a significant way.



Assesing and quantifying benefits:  
studies in progress



## Studies in progress: (relevant to recent INDCs discussions)

1. Quantifying cobenefits and competitiveness analysis (APOYO, MINAM and CDKN)
2. Financial analysis of 10 projects corresponding to mitigation options in Perú  
(Intelfin, MINAM, PMR World Bank)

# Quantifying cobenefits and competitiveness analysis

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## **Objective of the study:**

To analyze competitiveness and cobenefits of 10 mitigation measures proposed by PlanCC (forestry, energy and waste) and determine if the measure is beneficial from the economic perspective. This is relevant to justify public investment in the implementation of the measures

## **Methodology:**

- Cost- Benefit Analysis
- Sectoral average productivity
- Competitiveness global index

# Financial analysis of 10 projects corresponding to mitigation options

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- 10 projects in 3 sectors: Energy, Forestry and Waste.
- In the energy sector, the projects correspond to actual cases of companies that are operating in Peru. In forestry and waste sectors, the estimations were done with information from studies and interviews with experts.
- The analysis was based on projected financial flows which allowed to calculate the following financial indicators : amount of investment (CAPEX) required, net present value (NPV), internal rate of return (IRR), payback period (PP) and the cost of Capital (COK).

# Financial analysis of 10 projects corresponding to mitigation options in Perú

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- 9 of 10 projects: economic profitability (economic IRR) exceeded the cost of capital, and they are therefore potentially attractive projects for private investors.
- The study tries to demystify some prejudices, i.e., "green is expensive and uneconomic". It is not true, green can be profitable if provided the right conditions for its development"



# Conclusions:

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- Methods to assess cobenefits were qualitative during PlanCC phase 1 and more recently quantitative (although phase 1 included the CGE modeling)
- PlanCC results were key to analyze and estimate the costs and benefits of Peru's INDCs
- Quantitative analysis of cobenefits will be relevant for iNDC implementation. Stakeholders' expectations on cobenefits and enabling conditions of mitigation measures need to be addressed. (PlanCC phase2)
- The challenges will be to discuss and validate methodologies, particularly in the forestry sector and involve economists and business leaders in the assessments.



Thank you

[www.planccperu.org](http://www.planccperu.org)

[Iguinand@libelula.com.pe](mailto:Iguinand@libelula.com.pe)



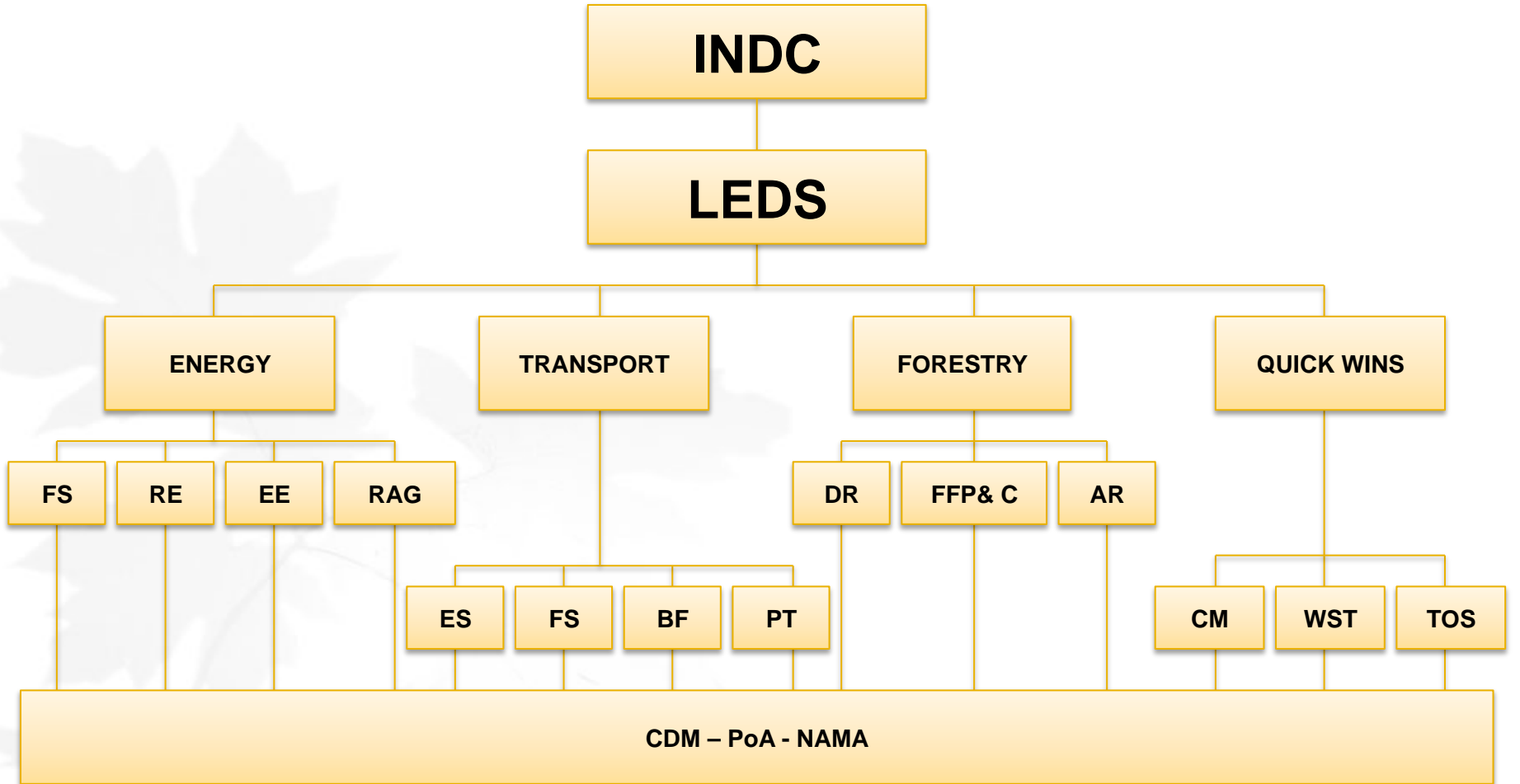
*Presidencia de la República Dominicana*

Consejo Nacional para el Cambio Climático  
y el Mecanismo de Desarrollo Limpio

# Assesing and communicating benefits of INDCs: The Dominican Republic Case

**Moises Alvarez**  
Technical Director

**LEDS Global Partnership 2015 Workshop**  
**Implementing LEDS: Innovation and Good Practices**  
Punta Cana  
Dominican Republic  
October 15th, 2015



**FS = Fuel Switch**  
**RE = Renewable Energy**  
**EE = Energy Efficiency**  
**RAG = Reduce Auto Generation**

**ES = Efficiency Standards**  
**FS = Fuel Switch**  
**BF = Biofuels**  
**PT = Public Transportation**

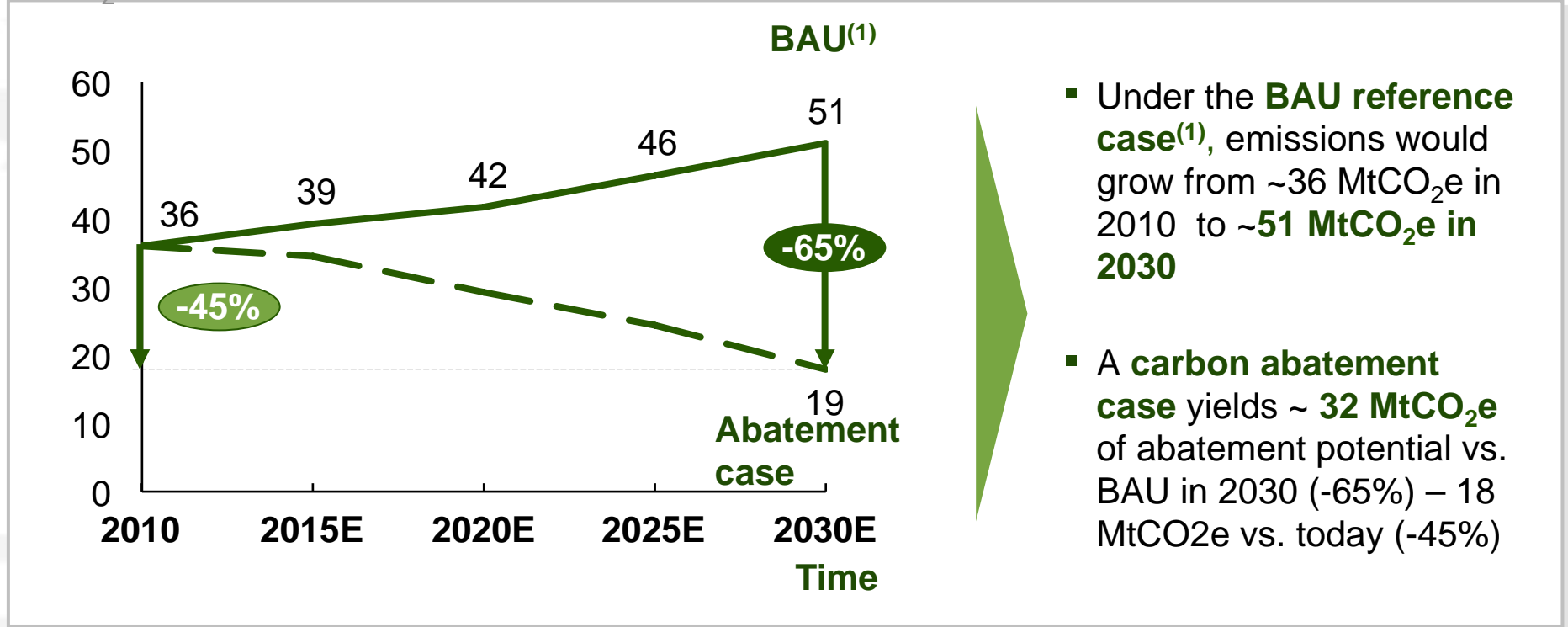
**DR = Deforestation Reduction**  
**FFP&C = Forest Fire Prevention & Control**  
**A/R = Afforestation / Reforestation**

**CM = Cement**  
**WST = Waste**  
**TOS = Tourism**

# Based on DR-specific analysis of technical abatement potential, ~ 65% of its BAU GHG emissions can be reduced by 2030

GHG emissions

MtCO<sub>2</sub>e



- Under the **BAU reference case<sup>(1)</sup>**, emissions would grow from ~36 MtCO<sub>2</sub>e in 2010 to ~**51 MtCO<sub>2</sub>e in 2030**
- A **carbon abatement case** yields ~ **32 MtCO<sub>2</sub>e** of abatement potential vs. BAU in 2030 (-65%) – 18 MtCO<sub>2</sub>e vs. today (-45%)

<sup>(1)</sup> “BAU” reference scenario is a basis for assessment of mitigation levers and carbon finance negotiations. It is not the most likely scenario, but a theoretical case assuming a country acts in its economic self-interest and does not include additional action for avoiding GHG emissions (e.g. renewables only added if cost competitive with fossils)



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## International Partnership on Mitigation and MRV

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### The Dominican Republic Commits to a 25% Reduction in Greenhouse Gas Emissions by 2030



The Dominican Republic will cut its greenhouse gas (GHG) emissions by 25%, a target set for 2030. The commitment was announced by Omar Ramírez Tejada, Executive Vice-President of the CNCCMDL (Dominican Republic's National Council for Climate Change and Clean Development Mechanism), during his address to the United Nations Climate Change Conference (COP 18) in the city of Doha, Qatar.

Mr Ramírez Tejada, who headed the Dominican delegation to the conference, explained that Law No. 1-12, which covers the country's National Development Strategy, establishes a binding commitment to achieve

an absolute reduction in GHG emissions in the Dominican Republic compared to 2010 levels.



### Recommended readings

**ALL** [LEDS](#) [NAMA](#) [MRV](#)

[OECD \(2012\): Tracking Climate Finance: What and How?](#)

[UNEP RISOE \(2012\): Measuring Reporting Verifying: A Primer on MRV for Nationally Appropriate Mitigation](#)

[CPI \(2012\): The Landscape of Climate Finance 2012](#)

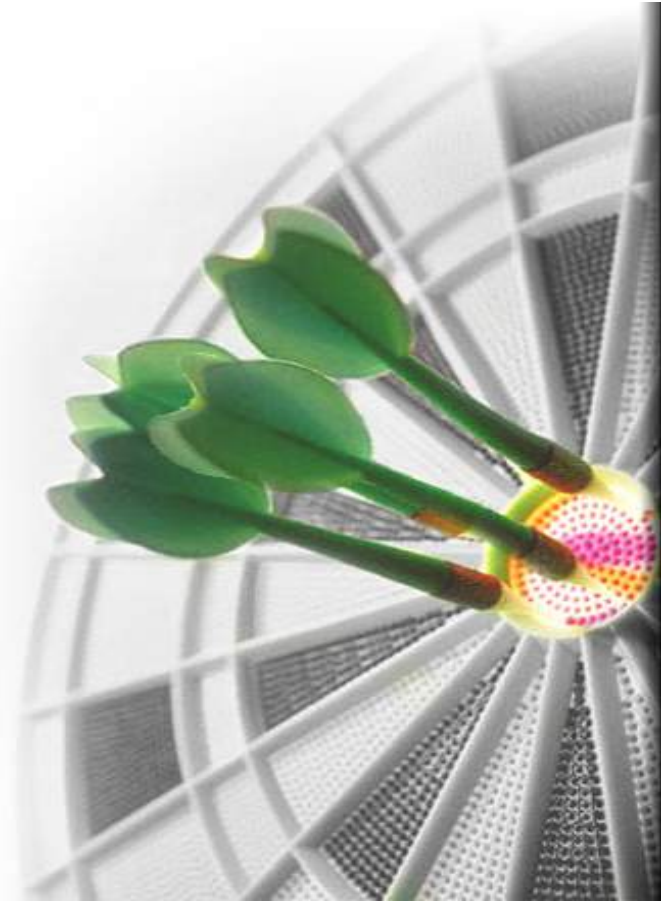
[OECD \(2010\): Low-Emission Development Strategies \(LEDS\): Technical, Institutional and Policy Lessons](#)



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## Sectoral Action Plans

- Energy
- Transport
- Forestry
- Quick-wins



## Sectoral Action Plans

### ➤ Energy

---

➤ Transport





➤ Forestry

➤ Quick-wins



# Selection of major programs the sector is committing to and underlying impact estimate

2030, steady state

Programs	Objectives	New permanent jobs 2030	Economic impact US\$ millions per year	Abatement impact MtCO <sub>2</sub>	Others Non-GHG Benefits
<b>Accessible and clean matrix</b> 	<b>Substituting fuel-oil with gas</b> Remove or convert all fuel-oil plants still operating in 2030 under the base line (4 GW) substituting them with natural gas	+/- 0	130	1.0	Cleaner air
	<b>Reduce auto-generation</b>  Reduce inefficient and dirty auto-generation from ~25% to 5% through a reliable and low cost electric system clients can trust.	+/- 0	20	0.5	Cleaner air
	<b>Renewable energy</b>  Increase participation of renewables in generation to ~38%, doubling hydraulic to 1.1 GW, and installing 850 MW wind capacity and 300 MW of biomass	1,300	300	4.3	Cleaner air
<b>Energy efficiency</b> 	<b>Reduce the need for electric generation by 13% vs. baseline demand</b> through changes in light bulbs, efficiency standards in buildings and electronics, as well as efficiency in industry.	33,000	550	2.8	Cleaner air
		Σ	~ 35.000	~ 1.000	~ 9

## Sectoral Action Plans

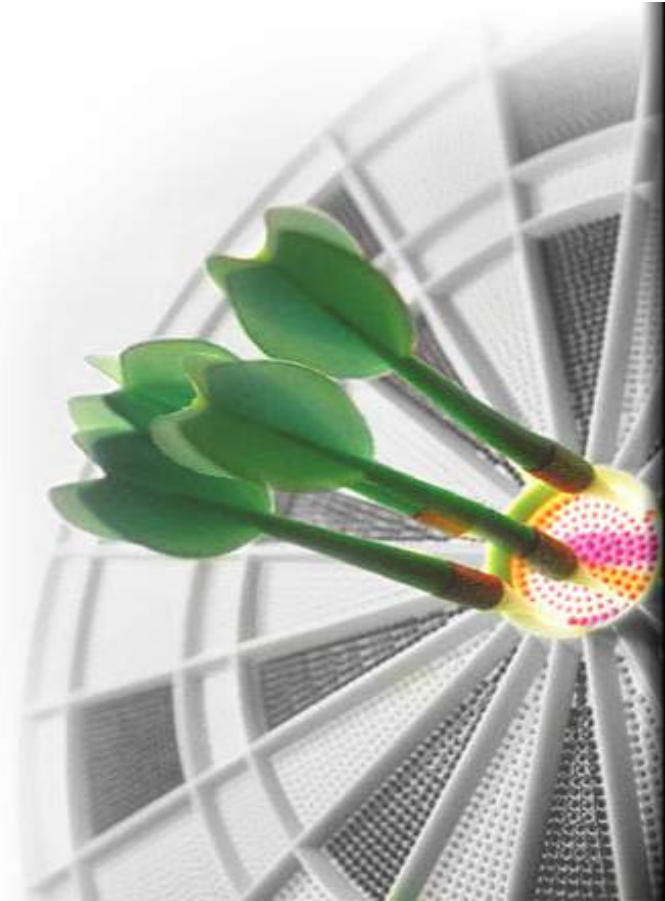
➤ Energy

➤ **Transport**

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➤ Forestry

➤ Quick-wins



# Selection of major programs the sector is committing to and underlying impact estimate

2030, steady-state

Programs	Objectives	New permanent jobs	Economic impact <sup>1</sup> MM USD	Abatement impact MtCO <sub>2</sub>	Others Non-GHG Benefits
Efficiency Standards	<ul style="list-style-type: none"> <li>Establish efficiency standards that ensure a decrease in fuel consumption in diesel and gasoline vehicles</li> <li><b>Decrease the share of annual imported of used cars,, from 67% in 2010 to 33% in 2030.</b></li> <li><b>Decrease the average age of the vehicle fleet from 15 years in 2010 to 10 years in 2030.</b></li> </ul>	0	~500	~1.3	Cleaner air Black Carbon Reduction
Shift to CNG	<ul style="list-style-type: none"> <li>Promote the use of CNG through a conversion program so that by 2030 we have converted:                             <ul style="list-style-type: none"> <li>110,000 vehicles from diesel</li> <li>108,000 vehicles from gasoline</li> <li>Eliminated 240,000 vehicles that use LPG</li> </ul> </li> <li>Create a network of CNG service stations</li> </ul>	~4,000	~600	~1.1	Cleaner air Black Carbon Reduction
Biofuels	<ul style="list-style-type: none"> <li>Produce locally ~2 million barrels of sugar cane bioethanol (E20 mix) and ~2 million barrels of biodiesel (B12 mix)</li> <li>Import bioethanol and biodiesel to reach average E50 and B50 mixes by 2030</li> </ul>	~21,000	~400	~2.4	Cleaner air Black Carbon Reduction
Public Transportation	<ul style="list-style-type: none"> <li>Increase the number of travels in the metro system from 100,000 people/day in 2010 to 700,000 by 2030, continuing with the construction of the metro network and reorganizing the current traditional system, based on a network of feeding lines with buses operated with CNG with capacity for 1.3 million people per day</li> </ul>	0	~200	~0.5	Cleaner air Black Carbon Reduction Less Traffic Congestion
Σ		~25,000	~1,700	~5	

<sup>1</sup> Savings in fuel consumption for the final user



## Sectoral Action Plans

- Energy
- Transport
- **Forestry**
- Quick-wins



# Selection of major programs the sector is committing to and underlying impact estimate

2030, steady-state

Programs	Objectives	New permanent jobs	Economic income through funding <sup>1</sup> USD million	Abatement impact MtCO <sub>2</sub>	Others Non-GHG Benefits
 <p>Deforestation reduction</p>	<ul style="list-style-type: none"> <li>Build a solid fact base for land use and land use change to identify the areas where deforestation takes place                             <ul style="list-style-type: none"> <li>Size historic deforestation rate</li> </ul> </li> <li>Identify the causes of deforestation and <b>design programs to reduce deforestation from ~6,200 has to ~ 1,400 has</b> <ul style="list-style-type: none"> <li>Roll-out extension programs</li> <li>Reduce illegal charcoal production</li> </ul> </li> </ul>	~3,000	~30 <sup>2</sup>	~2.2	
	<ul style="list-style-type: none"> <li><b>Reduce the area affected by fires in 2030 by ~80% relative to 2010 levels</b></li> <li>Increase the size of the fire prevention brigades from ~100 workers to ~400</li> <li>Invest in fire fighting equipment, such as water pumps, water trucks, helicopters</li> </ul>	~300	~6	~1.2	Cleaner air Black Carbon Reduction
 <p>A/R</p>	<ul style="list-style-type: none"> <li>Increase forest cover by ~235,000 hectares through A/R efforts by <b>increasing the reforestation rate from ~6,300 has/yr in 2010 to ~15,000 has/yr in 2030</b></li> <li>Provide ~9,500 new jobs through the reforestation program</li> </ul>	~9,500	~11	~2.2	



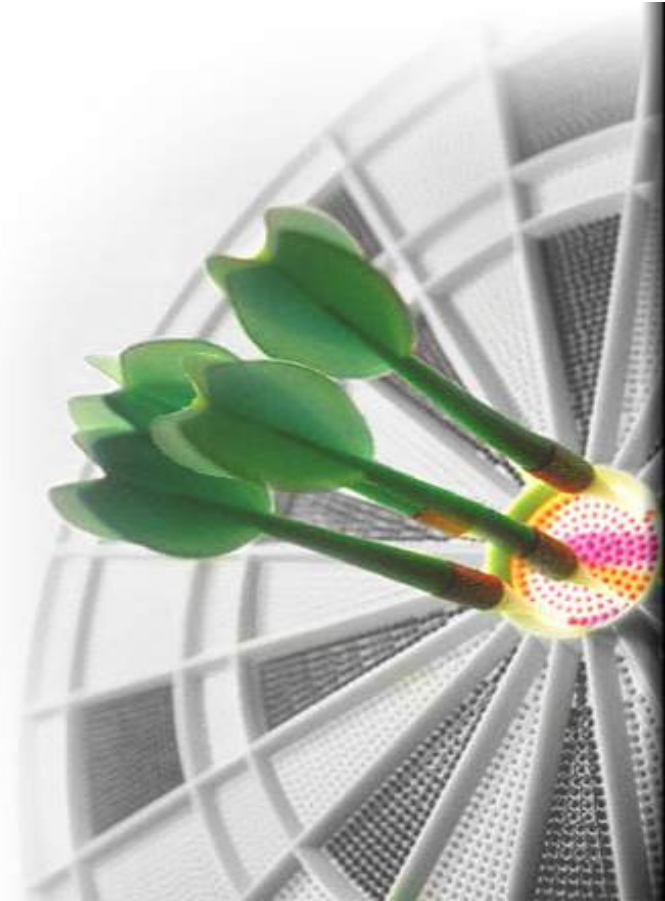
<sup>1</sup> 5 USD / ton from REDD and CDM mechanisms per ton of abatement

<sup>2</sup> Includes disposable income from Extension program (~18 MUSD)






## Sectoral Action Plans

- Energy
- Transport
- Forestry
- **Quick-wins**



# Quick wins in the cement, waste and tourism sectors can reduce annual emissions by ~5 MtCO<sub>2</sub>e in 2030

2030, steady state

Sectors	Objectives	New permanent jobs 2030	Economic impact MUSD annual, 2030	Abatement impact MtCO <sub>2</sub>	Others Non-GHG Benefits
 <b>Cement</b>	Reduce emissions and save money by <ul style="list-style-type: none"> <li>Replacing clinker with local mineral ingredients, such as fly ash</li> <li>Replacing fossil fuels with biomass and fossil waste</li> </ul>	2,000	110	1.1	Municipal Solid Waste reduction
 <b>Waste</b>	<ul style="list-style-type: none"> <li><b>Control the threats solid waste represents for public health and the tourism sector</b></li> <li>Reduce emissions and save money by installing modern recycling systems, composting and capturing gas from landfills</li> </ul>	9,500	0.5	3.2	Municipal Solid Waste reduction
 <b>Tourism</b>	<ul style="list-style-type: none"> <li>A more sustainable tourism sector through the reduction of emissions</li> <li>Capitalize on CCDP by promoting Dominican ecotourism on the basis of DR's growing reputation as a sustainability leader</li> </ul>	12,500	120	0.6	Better environment
Σ		~ 25,000	~ 230	~ 5	

## ANSWERING SOME QUESTIONS

- 1. What type of INDC was submitted (based on individual actions/policies or an economy wide assessment)?**

Our INDC is an intensity (Ton of CO<sub>2</sub>e per capita) economy wide assessment

- 2. How a scope was decided for which benefits and impacts to consider?**

This was determined by the contracted consultancy (McKinsey). See answer to question 5 below.

- 3. How were these benefits and impacts assessed, using certain tools or methods?**

This was determined by the contracted consultancy (McKinsey). The tools and methods used are unknown to us.

- 4. How were the results of this communicated and used? (this could be internally or internationally)**

This was used and presented internally and internationally in ppt and printed matter.

- 5. How will the results be used, or how will they be relevant to implementing the INDC in the future?**

The creation of jobs and the economy impact are very attractive for obtaining political and economical support.

For the good of our world, our region, and our country



**Thank you!**







**CONTRIBUTIONS PRÉVUES  
DÉTERMINÉES AU NIVEAU  
NATIONAL (INDC)**



Empowered lives.  
Resilient nations.



**La Côte d'Ivoire maintient son cap sur l'émergence en réduisant les Gaz à Effet de Serre**

**PRÉPARATION DES CONTRIBUTIONS PRÉVUES  
DÉTERMINÉES AU NIVEAU NATIONAL (INDC)  
POUR L'ACCORD GLOBAL POST 2020 SUR LE  
CHANGEMENT CLIMATIQUE**

# CONTENT

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- I. BRIEF PRESENTATION OF COTE D'IVOIRE**
- II. I.N.D.C PROCESS IN COTE D'IVOIRE**
- III. WHAT TO RETAIN FROM THE INDC IN COTE D'IVOIRE?**
- IV. PLANNING PROCESS, IMPLEMENTATION AND FOLLOW UP OF THE INDC**



République de Côte d'Ivoire

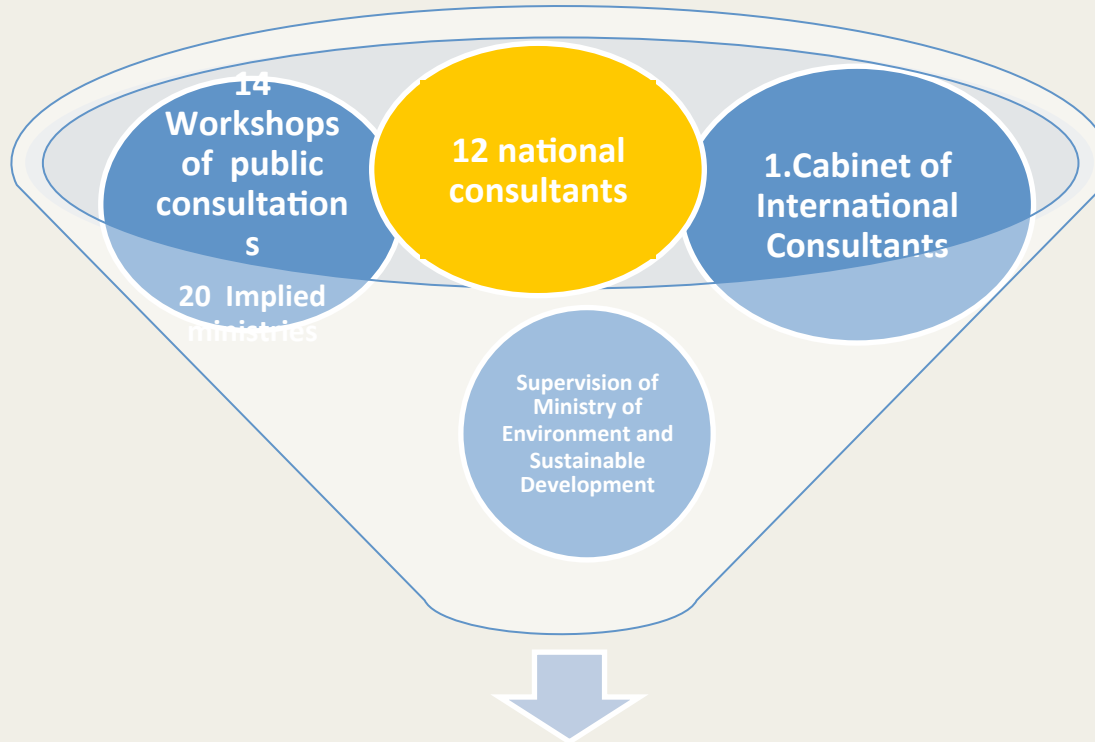


- **Economic growth in Ivory Coast: 8,3%**
- **Leader of cocoa production**
- **Leader in deforestation**
-



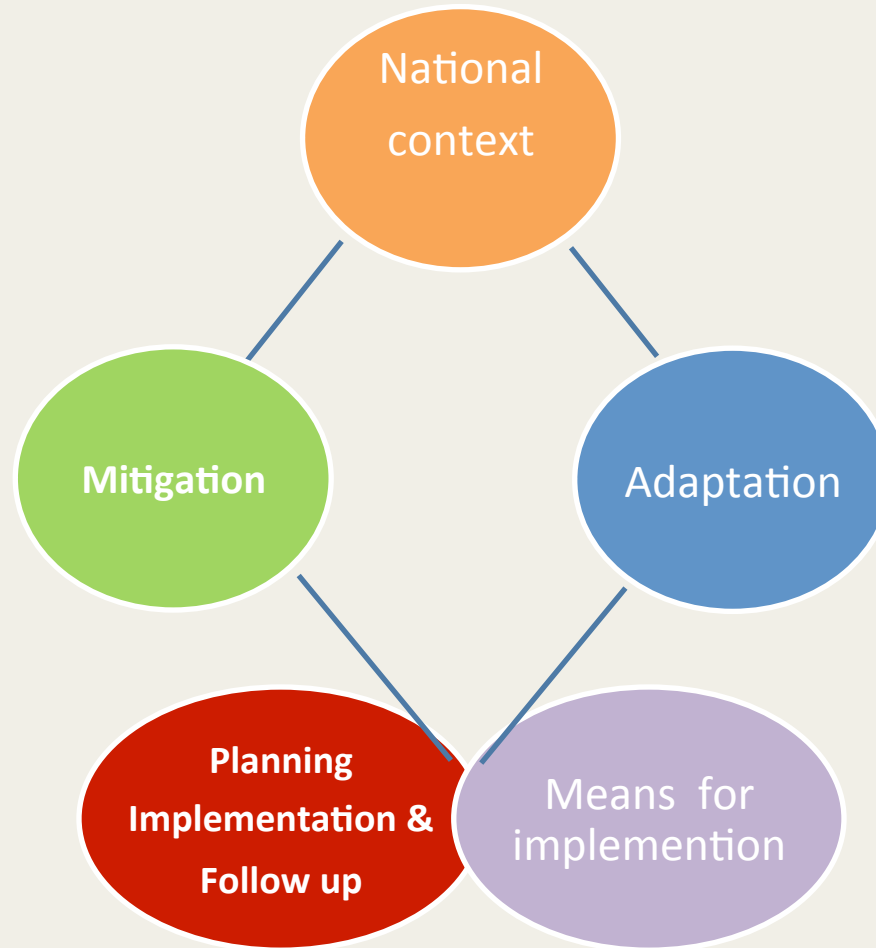
# I.N.D.C PROCESS IN COTE D'IVOIRE

## Inclusif and participatory process of national stakeholders



**INDC of Côte d'Ivoire**

# I.N.D.C PROCESS IN COTE D'IVOIRE – CONTENT OF THE REPORT



# METHODOLOGY

## 1. Diagnostic of greenhouse gas emission in 2012 (Year 1)

:Inventory of emissions based on the Third National communication  
( TNC)

## 2. Projection of greenhouse emission in 2030 (target year)

### a. In terms of Business as Usual (BAU) :

case study where no reduction in gas emission is undertaken

### b. Planned development of clean carbon by Côte d'Ivoire :

case study of voluntary contribution

## WHAT TO RETAIN FROM THE INDC IN COTE D'IVOIRE?

1. **MAIN FIELDS OF ACTIVITIES EMITTERS OF GREENHOUSE GASES (2012)**
  - a) **Energy-Transport**: 8 241 kilotons equivalent of carbon monoxide, that is 51.6% of total greenhouse effects gas emissions
  - b) **Agriculture**: 6 141 kilotons equivalent of carbon monoxide, that is 38.5% of total greenhouse effects gas emissions
  - c) **Wastes** : 1 582 kilotons equivalent of carbon monoxide, that is 9.9% of total greenhouse effects gas emissions
  - d) **Total emissions of greenhouse gas : 15 964 equivalent of carbon monoxide**

# WHAT TO RETAIN FROM INDC IN COTE D'IVOIRE ? – OUR CONTRIBUTION



	2012	BAU (2025)	Sustainable Low Carbon (2025)
Production d'électricité	8 442,48	21 871,93	8 324,58
Transport	2 389,35	6 441,37	4 437,88
Industrie	1 949,31	2 684,81	1 934,41
Approvisionnement en énergie	781,46	2 132,33	1 488,88
Bâtiments	627,48	2 488,14	1 174,81
Agriculture	4 148,89	7 088,16	4 718,88
Usines	1 961,48	1 961,48	1 961,48

Total émissions (ktonne équiv. CO <sub>2</sub> )	15 964,35	34 253,25	24 576,16
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# **ACTIONS TO REDUCE THE EMISSION OF GREENHOUSE GASES ( 2016-2030)**

## **1. Field of Power-Transport**

- a. Transition to Clean sources of energy (Power)
- b. Power efficiency

## **2. Agriculture**

- a. Intensification and mechanization
- b. Control of deforestation

## **3. Wastes**

### **POTENTIAL REDUCTION OF GREENHOUSE EFFECT GAS EMISSIONS (2030)**

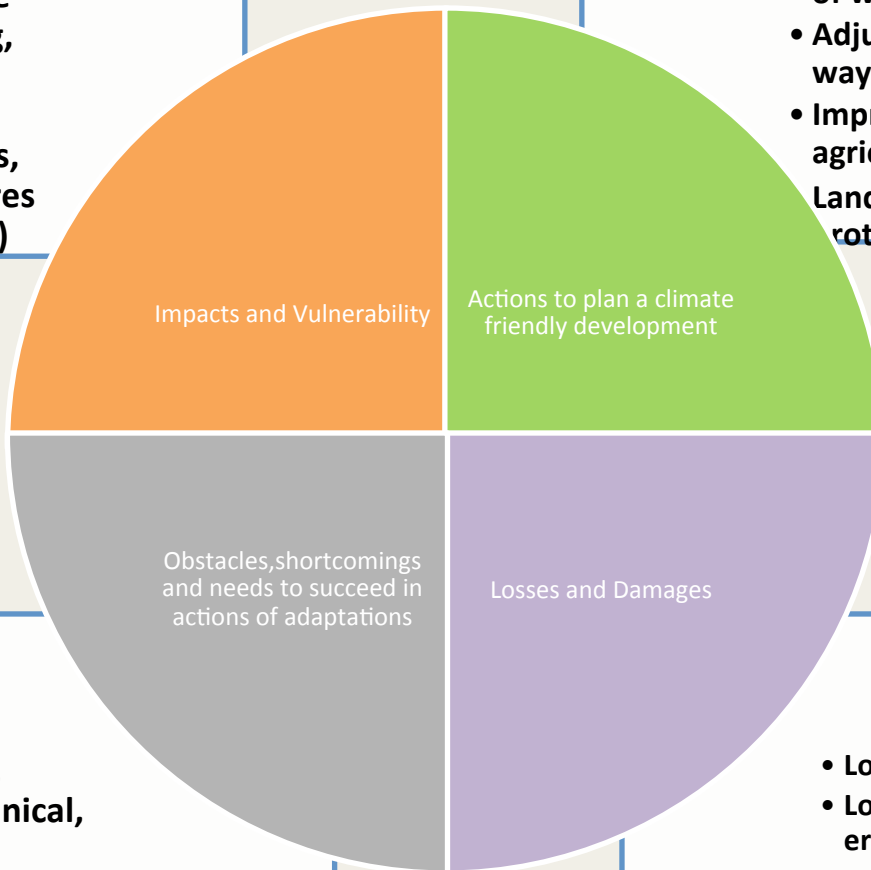
Recovering liquid and solid Wastes

Projected reduction : -28%

# WHAT TO RETAIN FROM THE COTE D'IVOIRE'S INDC's - ADAPTATION

- **11 vulnerable fields of activities: agriculture and animal breeding, use of soils, forests, water resources, power, coastal zones, fishing, infrastructures ( housing conditions) transport, public health and gender issues**

- **Mastery and management of water resources**
- **Adjustment of water ways**
- **Improvement of agricultural productions**
- **Landscaping and protection of sea coasts**



- **Human resources, Institutional, Technical, Financial capacity building and technological transfer**

- **Loss of Human lives**
- **Losses related to sea coast erosion**
- **Damages of agricultural products**
- **Destructions of infrastructures**

# PLANNING PROCESS, IMPLEMENTATION AND FOLLOW UP OF THE INDC

## Institutional Framework

- Creation of a climate change interministry committee presided by the prime minister
- Logging the secretaryship of the committee on climate change at the ministry of environment

## Making the INDC operational

### Creating a relationship between the INDC and the National development Plan

- Additional studies after submission of the INDC ( inventory of greenhouse gases, potential in renewable energy sources etc.)

## Follow up and evaluation of INDC

- Establishing follow up indicators (emission of greenhouse gas, vulnerability, adaptation, agricultural intensification)
- Follow up of expenses related to climate change

## Communication and updating / revision of the INDC

- Communication just after the COP 21
- Updating the INDC by the secretaryship of the interministry committee on climate change ( for example after the COP 21 and every 5 years)



# WHAT TO RETAIN FROM THE INDC IN COTE D'IVOIRE? – MEANS FOR IMPLEMENTATION

## MEANS FOR IMPLEMENTATION

### Financing

- National budget
- Private Finances
- Market induced mechanisms
- Financial and Technical partners
- 

### Capacity building of deciders and actors

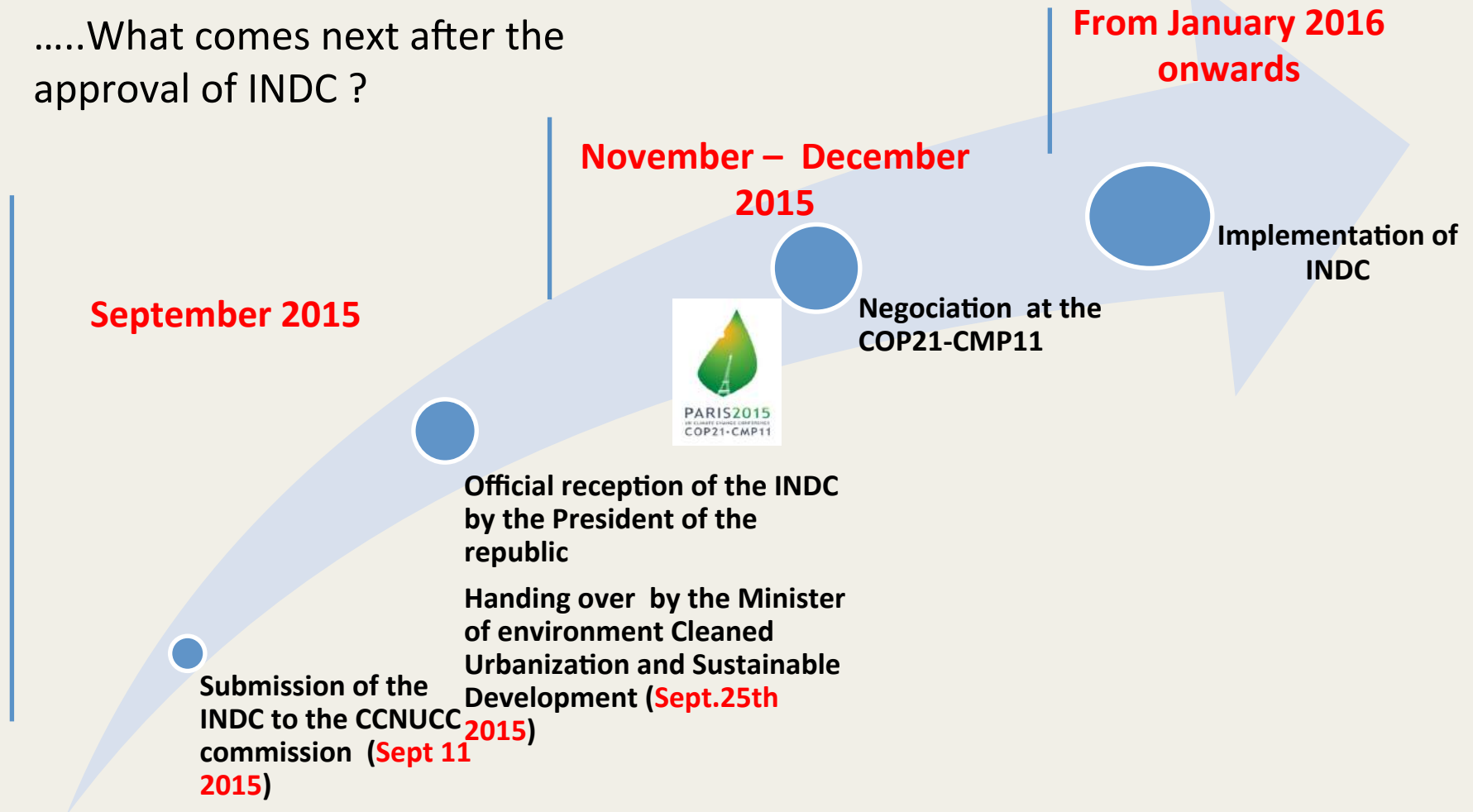
- **For reduction**
- **For adaptation**

### Transfer and development of technologies -R&D

- Technologies of low emission
- Optimization of production processes

# CONTINUATION OF THE INDC PROCESS

....What comes next after the approval of INDC ?





**THANKS FOR YOUR SUSTAINED  
ATTENTION !**

ROYAUME DU MAROC



MINISTÈRE DÉLÉGUÉ AUPRÈS  
DU MINISTRE DE L'ÉNERGIE, DES MINES,  
DE L'EAU ET DE L'ENVIRONNEMENT,  
CHARGE DE L'ENVIRONNEMENT



# Assessing and communicating benefits of INDCs - Morocco

**LEDS Global Partnership 2015 Annual Workshop  
Implementing LEDS: Innovation and Good Practices  
14- 16 october 2015 Dominican Republic**

**Imane Chafiq, Technical Advisor  
Climate Change Competence Centre Project/IKI**

**giz** Deutsche Gesellschaft  
für Internationale  
Zusammenarbeit (GIZ) GmbH

Mandaté par :



Ministère fédéral  
de l'Environnement, de la Protection de la Nature,  
de la Construction et de la Sécurité nucléaire

de la République fédérale d'Allemagne



# INDC Maroc

June 2015



DEUTSCHE  
BUNDESREGIERUNG  
MAROC

## INTENDED NATIONALLY DETERMINED CONTRIBUTION UNDER THE UNFCCC



# Mitigation targets



**Unconditional target**

**13%** by 2030 compared to BAU scenario



**Conditional target**

**19%** under conditions



**Total contribution**

**32%** by 2030 below BAU scenario

## Financial needs (2015-2033)

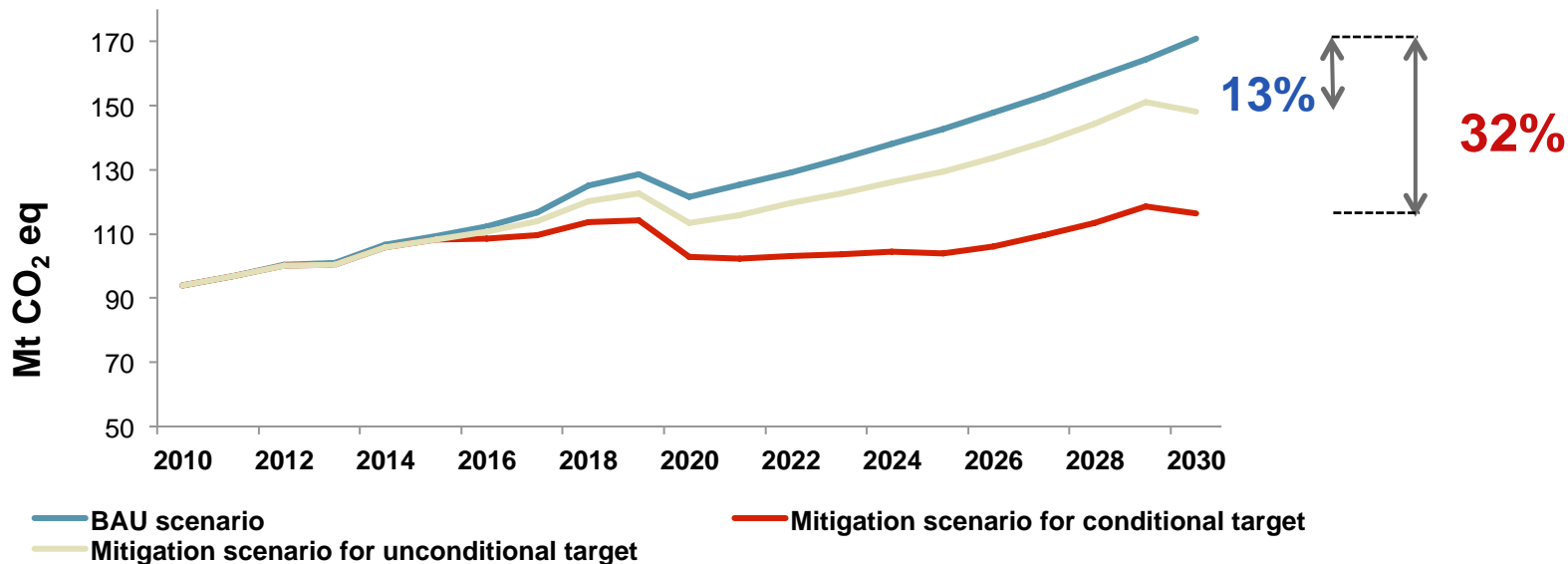
**10billion USD**

**35billion USD**

**45billion USD**



# BAU and mitigation scenarios







# Morocco INDC



## Assumptions and methodological approach

**Sectors coverage:** 1. Energy 2. Agriculture 3. Waste  
4. Industrial processes 5. LULUCF

### Mitigation scenarios:

Implementing **54 projects 2010- 2030** based on **3rd National communication results:**




Unconditional scenario: 10 projects

Conditional scenario: **giz** 44 projects

Deutsche Gesellschaft  
für Internationale  
Zusammenarbeit (GIZ) GmbH

Mandaté par :

 Ministère fédéral  
de l'Environnement, de la Protection de la Nature,  
de la Construction et de la Sécurité nucléaire

de la République fédérale d'Allemagne





# Morocco INDC



## Assumptions and methodological approach

### Methodology for Estimating Emissions

- 2010 GHG emissions inventory => revised 1996 IPCC Guidelines.
- BAU and mitigation scenarios => "Long-range Energy Alternatives Planning System" (LEAP)
- Other data=> National Statistics Directory, economic data on sectorial activities, prospective analysis.





# Morocco INDC

## Benefits and impacts assessment 1/3

- No macroeconomic model used
- **multi-criteria analysis**
- a **set of criteria** established to analyze, guide the discussion toward some key advantages and disadvantages of selected projects.
- Criteria determined by “**national group of experts**” in charge of the 3rd national communication



# Morocco INDC

## Benefits and impacts assessment 2/3

### 1. Climate change

mitigation potential of GHG emissions

### 2. Economic and social impact

cost-effectiveness, investment spending and operating costs, ...  
 Macroeconomic aspects are taken into account: GDP, number of jobs created or lost, effects on inflation and interest rates, impact on the long-term development, exchange and foreign trade, other economic advantages or disadvantages

### 3. Administrative, institutional and political considerations:

administrative charges, institutional capacity to carry out necessary operations for information gathering, surveillance, enforcement, authorization, etc.



# Morocco INDC

## Benefits and impacts assessment 3/3

- A set of 3 to 4 indicators per criteria
- notation per indicator given on the basis of **experts consultations**
- Proposed mitigation measures ranked on the basis of **total score**
- **Tool** used: excel factsheet





# Indicators for benefits/ impacts assessments:

indicator

Score

Explanation

Indicateur	Note	Evaluation
Contribution à la réduction des émissions de GES	de -3 à +3	Mesurée par la réduction nette des émissions de GES (CO <sub>2</sub> , ...) Barème: 0 pas de changement dans les émissions de GES comparé au scénario de base et + 3 pour une réduction totale des émissions
Contribution au développement durable	de -3 à +3	L'impact sur l'environnement local sera évalué par le % de variation des émissions du polluant local le plus significatif (CO <sub>2</sub> , CO, N <sub>2</sub> O, MPS, SO <sub>2</sub> , Métaux lourds ...). Une moyenne pondérée doit être envisagée s'il faut tenir compte de plusieurs polluants à la fois. Barème : 0 pour pas de changement, +3 pour un évitement total des émissions du polluant et -3 pour un doublement de ces émissions
Contribution à la création d'emploi direct net	de -3 à +3	Nombre additionnel d'emplois créés par le projet en comparaison avec la ligne de base. Barème : 0 pas de changement du niveau d'emploi, +3 doublement du nombre d'emplois et -3 suppression pour tous les emplois prévus au scénario de base. Cet indicateur est problématique car il n'intègre pas l'aspect qualitatif des emplois : qualification, temporaire/permanent, direct/indirect, ...
Considérations d'ordre administratif, institutionnel et politique	de -3 à +3	Capacités institutionnelles de mener à bien les opérations nécessaires en matière de collecte des informations, de surveillance, de mise à exécution, d'autorisation, etc. Mais également, la capacité d'endurer les procédures administratives et bureaucratiques et de maintenir un appui politique cohérent avec les autres mesures d'intérêt public.



N°	Mesures d'atténuation	Investissement de base	Potentiel d'atténuation	Coûts/Bénéfices Nets directs	Coûts totaux directs annualisés	Indicateurs								Note Totale
						Réduction des GES	Développement durable	Création d'emplois	Administratif, Institutionnel & Politique	Macro-économique	Coûts	Autonomie technologique	Usage durable des ressources naturelles	
		(SUS x 106)	(T. E-CO2/an x 103)	(\$/T. E-CO2)	(\$US x 106)									
9	Importation et distribution du gaz naturel dans les principales villes industrielles du Royaume	650,00	2 219,41	-458,89	-1 018,46	3	2	3	2	3	3	2	1	19
23	Programme Biomasse - Inventaire, organisation et valorisation de la filière	564,71	973,22	-99,78	-97,11	2	3	3	3	2	1	2	3	19
42	Amélioration du rendement des terres agricoles sur une superficie de 4 200 000 ha.	2,30	6 034,88	0,06	0,37	3	3	2	3	3	0	3	2	19
5	Centrales hydroélectriques : 700 MW	1 400,00	1 468,22	-157,06	-230,60	2	3	1	3	2	2	2	3	18
49	Valorisation des émanations de GES en provenance des décharges contrôlées	1 066,13	15 637,10	-13,56	-212,09	3	3	2	3	2	2	1	2	18
10	Programme national de Développement des chauffe-eau solaires "SHEMSI"- Objectif de 1 700 000 m <sup>2</sup> à l'horizon de 2025	945,00	189,66	87,35	16,57	1	3	3	3	3	0	2	3	18
46	Renforcement du programme oléicole - Plantation de 55 600 Ha par année sur une durée du programme de 10 ans.	167,05	206,87	-406,11	-84,01	1	3	2	2	2	1	3	3	17
16	Ville nouvelle de Chrafate à faible émission de carbone - projet-pilote - population à terme de 150 000 habitants.	165,25	142,27	64,88	9,23	1	3	3	3	2	0	2	3	17
44	Reforestation - reboisement de 60 000 Ha/an sur une période de 10 ans.	300,30	816,75	59,84	48,87	2	3	2	2	2	0	3	3	17
17	Généralisation du Programme "Villes Vertes" à faible émission de carbone - population à 2040 de 1 000 000 habitants.	1 108,35	957,38	79,71	76,32	2	3	3	3	2	-1	2	3	17
14	Programme national de promotion des Panneaux photovoltaïques (PV) basse tension pour une capacité totale de 1 010 MWc	2 020,00	753,66	243,73	183,69	2	3	3	3	2	-1	2	3	17
18	Parcs éoliens privés - extension à 150 MW à l'horizon de 2040	11,02	177,56	-135,20	-24,01	1	3	0	3	3	0	3	3	16
4	Programme de centrales photovoltaïques en bout de ligne de capacité totale de 400 MW	800,00	963,53	33,83	32,60	2	3	3	3	2	0	0	3	16



# Communication of results:







CC focal points workshop, April 30



National conference, June 2nd

المملكة المغربية  
ROYAUME DU MAROC  
Kingdom of Morocco

## MOROCCO INTENDED NATIONALLY DETERMINED CONTRIBUTION

**Vision**  
To ensure Morocco's territory and society are more resilient to climate change while rapidly transitioning to a low-carbon economy

**Economy-wide mitigation targets**

**-13%**  
by 2030 compared to BAU  
Unconditional target

**-32%**  
by 2050 compared to BAU  
Conditional target subject to support from the international community

More than 50% renewable energy by 2030  
Energy savings of 15% by 2030  
Substantial decrease in fossil fuel subsidies  
Substantial increase in use of natural gas

**Goals of adaptation actions**

- Protect populations
- Protect intangible cultural heritage
- Protect natural heritage biodiversity, forests, and fisheries
- Protect production systems that are vulnerable to climate change

Poster  
(Fr & Eng)

المملكة المغربية  
ROYAUME DU MAROC  
Kingdom of Morocco

### Morocco's commitment for the Climate

**CONTRIBUTION OF THE KINGDOM OF MOROCCO  
to tackle climate change in the perspective  
of the new international climate agreement**

**INDC  
Maroc**

At the Conference of Parties and Climate Change (COP19) in Mexico, in 2013, Morocco has committed to submit a National Determined Contribution (NDC) by the end of 2015 to the UNFCCC process. The process involved various stakeholders for the process (Government and academia) led by Moroccan Environment and Climate Change Commission (MCCC) in cooperation with the UNFCCC secretariat.

**MITIGATION CONTRIBUTION**

1. A 13% reduction in GHG emissions by 2030 (compared to 2010 level) under BAU scenario.

2. A 32% reduction in GHG emissions by 2050 (compared to 2010 level) under BAU scenario, which is subject to international support, which will be provided by the UNFCCC process.

3. The total emissions are about 500 Mtpa CO<sub>2</sub> eq in 2020 and 1000 Mtpa CO<sub>2</sub> eq in 2050. The total emissions are about 500 Mtpa CO<sub>2</sub> eq in 2020 and 1000 Mtpa CO<sub>2</sub> eq in 2050.

4. Morocco's National Determined Contribution (NDC) target is an overall emission reduction of 13% by 2030 and 32% by 2050.

Factsheet (Fr, Eng, Arabic)

**Approaches**

- Energy reductions from pre-2000 emissions for the year 2030, according to a BAU scenario
- CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O: Estimated figures are not covered as they are rarely used in Morocco and not mentioned in the management
- Energy: Energy production, Energy demand (households, transport, industry, services, agriculture and fisheries)
- Industrial Processes: Cement, industry, steel and metal manufacturing, other industries
- Agriculture: Emission: fertilization and manure management, cropping systems, agricultural land use
- Water: Solid waste, waste water
- Land use, land-use change and forestry (LULUCF): Natural forests, afforestation/reafforestation, pastureland, firewood from forests and orchards, forest fire

Projection of emissions of GHG by 2030, starting from 2010 (the first year following implementation of the National Plan for the fight against Global Warming). The projection therefore does not take into account the mitigation measures and actions adopted after 2010.

Distribution of the mitigation effort by sector between 2030 and 2050, to achieve the conditional target

Legend:

- Energy
- Industrial Process
- Agriculture
- Land use change
- Waste

Mandaté par :



Ministère fédéral  
de l'Environnement, de la Protection de la Nature,  
de la Construction et de la Sécurité nucléaire

de la République fédérale d'Allemagne





# Results Vs INDC implementation:

- Inclusive gouvernance of climate action
- Reform legal and institutional framework
- Clear and ambitious targets
- Design feasible solutions adapted to national context
- Mobilizing finance





Thank you