Assessment Outputs for Informing National Climate Policy and Adaptation Plans in Lebanon

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1. From assessment outputs ...
Assessment Outputs

National communications and BURs
Lebanon’s greenhouse gas emission inventory

+26 million tonnes CO$_2$eq.
Total emissions in 2012

-3 million tonnes CO$_2$
Removals from Forests
Emission reduction in 2030

- Energy: 66-70% reduction
- Transport: 10-20% reduction
- Waste: 12-20% reduction

Quality of life, Cost, Pollution
Impacts on water:
- Decrease in groundwater recharge
- Decrease of river flow

40% decrease in snow cover

Impacts on agriculture:
- Decrease in soil moisture and increase in aridity
- Increased infestation of fungi and bacterial diseases

25-50% decrease in rainfall
3-5°C increase in temperature

Impacts on public health:
- Increased morbidity and mortality
- Outbreak of infectious diseases

Increased extreme events (flooding, storms, droughts...)

Impacts on tourism:
- Shorter skiing season
- Loss of natural attractions
- Decrease in ecotourism activities

Impacts on electricity:
- Higher cooling demand in summer
- Increase in the cost of power production

Impacts on coastal zones:
- Coastal flooding and inundation during storms
- Seawater intrusion and salinization of coastal aquifers
- Coastal erosion and loss of sand beaches
National communications and BURs

- Most emitting sectors
- Most vulnerable sectors
- Barriers and challenges
- Technical, capacity building and financial needs
- Institutional changes
- Coordination mechanisms
Assessment Outputs

- National communications and BURs
- Technology needs assessment
  - Priority mitigation and adaptation sectors
  - Priority technology
Prioritized sectors

Emissions
- Power
- Transport

Vulnerability
- Agriculture
- Water
Prioritized Mitigation Technologies

Power
- Combined-Cycle Gas Turbines
- Wind Power
- PV Cells
- Hydro Power

Transport
- Fuel efficient gasoline cars
- Hybrid electric vehicles
- Bus technologies with dedicated lanes
Prioritized Adaptation Technologies

Agriculture

- Conservation Agriculture
- Risk Coping Production Systems
- Selection of adapted varieties and rootstocks

Water

- Rainwater harvesting from roads
- Rainwater harvesting from greenhouse tops
- Water users’ association
Assessment Outputs

- National communications and BURs
- Technology needs assessment
- Economic cost of climate change

- Climate change bill on the Lebanese economy
- Most vulnerable sectors from another perspective
**Costs in 2020 (million USD)**

<table>
<thead>
<tr>
<th>Category</th>
<th>Food Prices</th>
<th>Public Health</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reductions in Lebanon’s agricultural production</td>
<td>300</td>
<td>47,200</td>
</tr>
<tr>
<td>Reductions in wheat and maize</td>
<td></td>
<td>177,900</td>
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<tr>
<td>Increase in global food prices</td>
<td>470</td>
<td>110</td>
</tr>
<tr>
<td>Reductions in ag.dom.water supply</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increases in water supply, floods/landslides, and...</td>
<td>21 3</td>
<td>22 22</td>
</tr>
<tr>
<td>Increases in demand for cooling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increases in risk of death</td>
<td></td>
<td></td>
</tr>
<tr>
<td>修改了角度的描述</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increases in diversity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increases in risk of death</td>
<td></td>
<td></td>
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<tr>
<td>Reductions in biodiversity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reductions in land degradation</td>
<td></td>
<td></td>
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<tr>
<td>Increases in sea level</td>
<td></td>
<td></td>
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<tr>
<td>Increases in higher temperature from heat</td>
<td></td>
<td></td>
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<tr>
<td>Increases in workers’ productivity (childhood)</td>
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<td></td>
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<tr>
<td>Increases in workers’ productivity</td>
<td></td>
<td></td>
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<tr>
<td>Reductions in internal migration</td>
<td></td>
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</tbody>
</table>
Assessment Outputs

- National communications and BURs
- Technology needs assessment
- Economic cost of climate change
- Desrisking of Climate change

- Deploy the market of RE in a cost effective way for the government
Main results

- How does the deployment of the selected public instrument package...catalyse private sector investment?
- ... generate economy-wide savings?
- ... increase the affordability of RE for end-users?
- ... benefit the environment?

2030 investment target: **300 MW** utility-scale solar PV

- Estimated at **USD 46m**
- ... of **USD 279m**
- ... of **USD 97m** over 20 years
- ... by lowering the LCOE from USD 10 cents to 8.2 cents per kWh
- ... by reducing carbon emissions by -5.2 million tonnes over 20 years
Other Assessment Outputs

- Academic research
- Regional initiatives
  
  RICCAR
  ACCWAM
  CLimasouth
Increase in temperatures

+ 1.2°C

+ 3.2°C

Source | Adapted from ESCWA, 2015
Decrease in precipitations

<table>
<thead>
<tr>
<th>Source</th>
<th>Adapted from ESCWA, 2015</th>
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</thead>
<tbody>
<tr>
<td>RCP4.5 (2046-2065)</td>
<td></td>
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<tr>
<td>RCP4.5 (2081-2100)</td>
<td></td>
</tr>
</tbody>
</table>

- **4%**
- **11%**
2. ... to appropriate climate policies
Climatizing national partners

- MoA’s 2015-2019 plan: responding to climate change impacts;

- MoA’s National Afforestation and Reforestation Program; “Adapt the forest and agriculture systems in Lebanon to climate change”;

- MoEW’s National Water Sector Strategy: improving climate change knowledge, and its implications on water and its vulnerability;

- MoE’s biodiversity strategy: “By 2030, vulnerable ecosystems to climate change are identified and adaptation plans are developed and implemented”;

- Consulted on other policies, LDN, air quality etc.
Lebanon’s INDC

Cut CO$_2$ emissions

- 15% Unconditional target
- 30% Conditional to finance, technical support and capacity building

2030
3. ... while building a solid network
INDC development

- GHG inventory
- Impact and vulnerability assessment
- Cost estimation

Reduction potential

Adaptation need

Indentifying technologies

Indentifying barriers

Climate change policies that are needed

Sectoral assessment of policies and plans

Current and future national policies

INDC
Successful ministerial coordination allowed Lebanon’s commitment at COP 21

Lebanon presented its Intended Nationally Determined Contribution in December 2015 for the Paris agreement.
Replicating the INDC experience

Assessment
Technical and consultative
INDC
COP21
Strategic/guiding document

Mitigation

Assessment
Technical and consultative
NAP
COPXX
Strategic/guiding document

Adaptation
Thanks!

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