

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

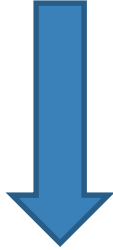
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the Ministry of Environment, UNDP, Lebanon

# 1.

## From assessment outputs ...

**Assessment Outputs**

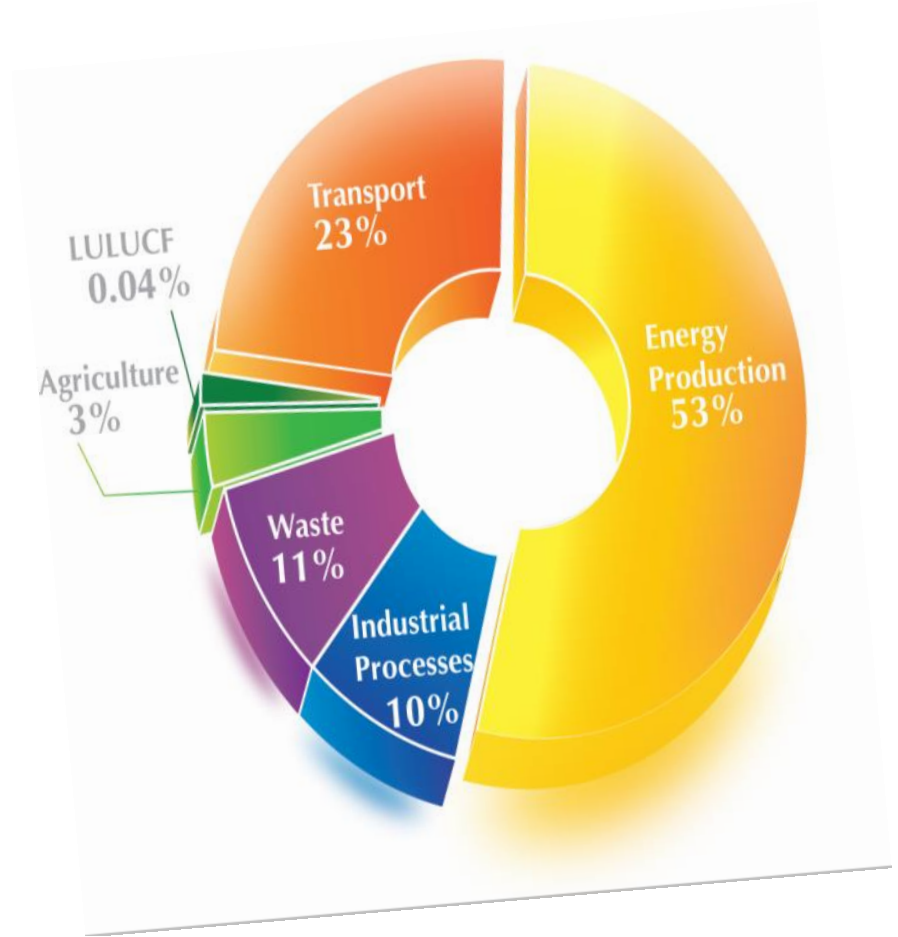


**National  
communications  
and BURs**

# Lebanon's greenhouse gas emission inventory

**+26 million tonnes CO<sub>2</sub>eq.**  
Total emissions in 2012

**-3 million tonnes CO<sub>2</sub>**  
Removals from Forests



# Emission reduction in 2030



Energy  
66-70%

-20%

to

-40%



Transport  
10-20%



Waste  
12-20%



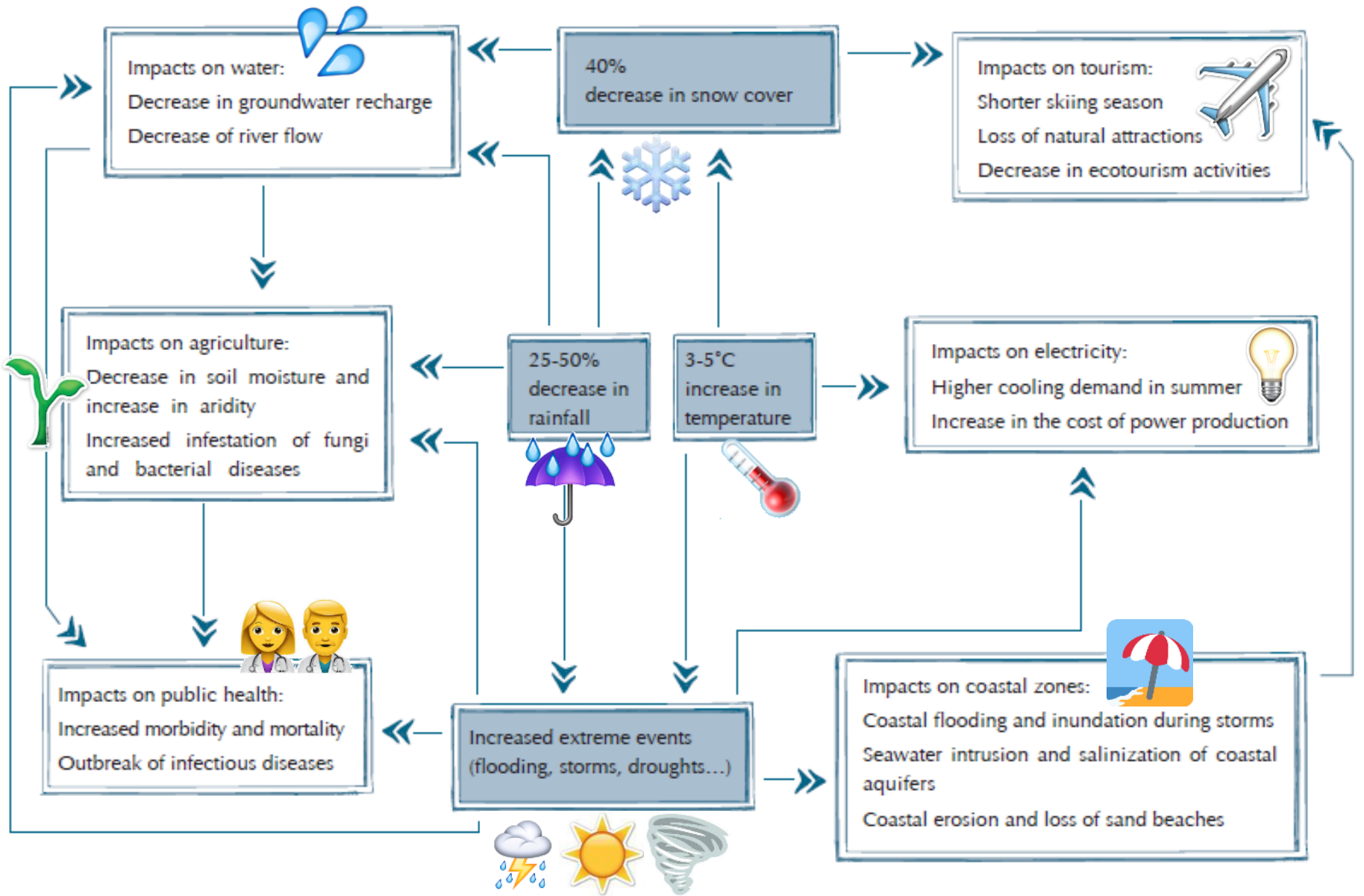
Pollution



Cost

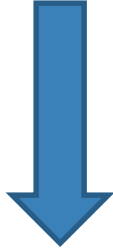


Quality of life





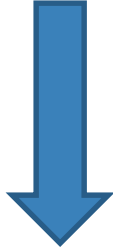
**Assessment Outputs**



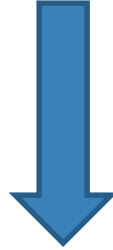
**National  
communications  
and BURs**

- 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**

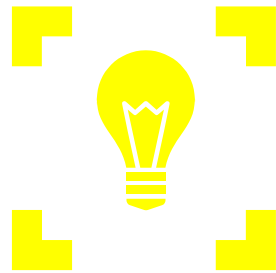
- Priority mitigation and adaptation sectors
- Priority technology



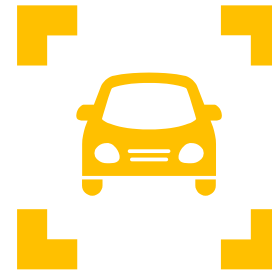
# Prioritized sectors

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## Emissions



Power



Transport

## Vulnerability



Agriculture



Water

# Prioritized Mitigation Technologies

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## 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

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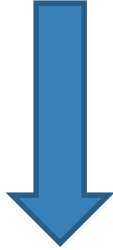
## Agriculture

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

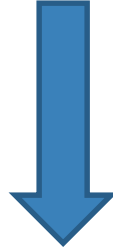
## Water

- Rainwater harvesting from roads
- Rainwater harvesting from greenhouse tops
- Water users' association

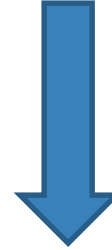
## Assessment Outputs



**National  
communications  
and BURs**



**Technology  
needs  
assessment**



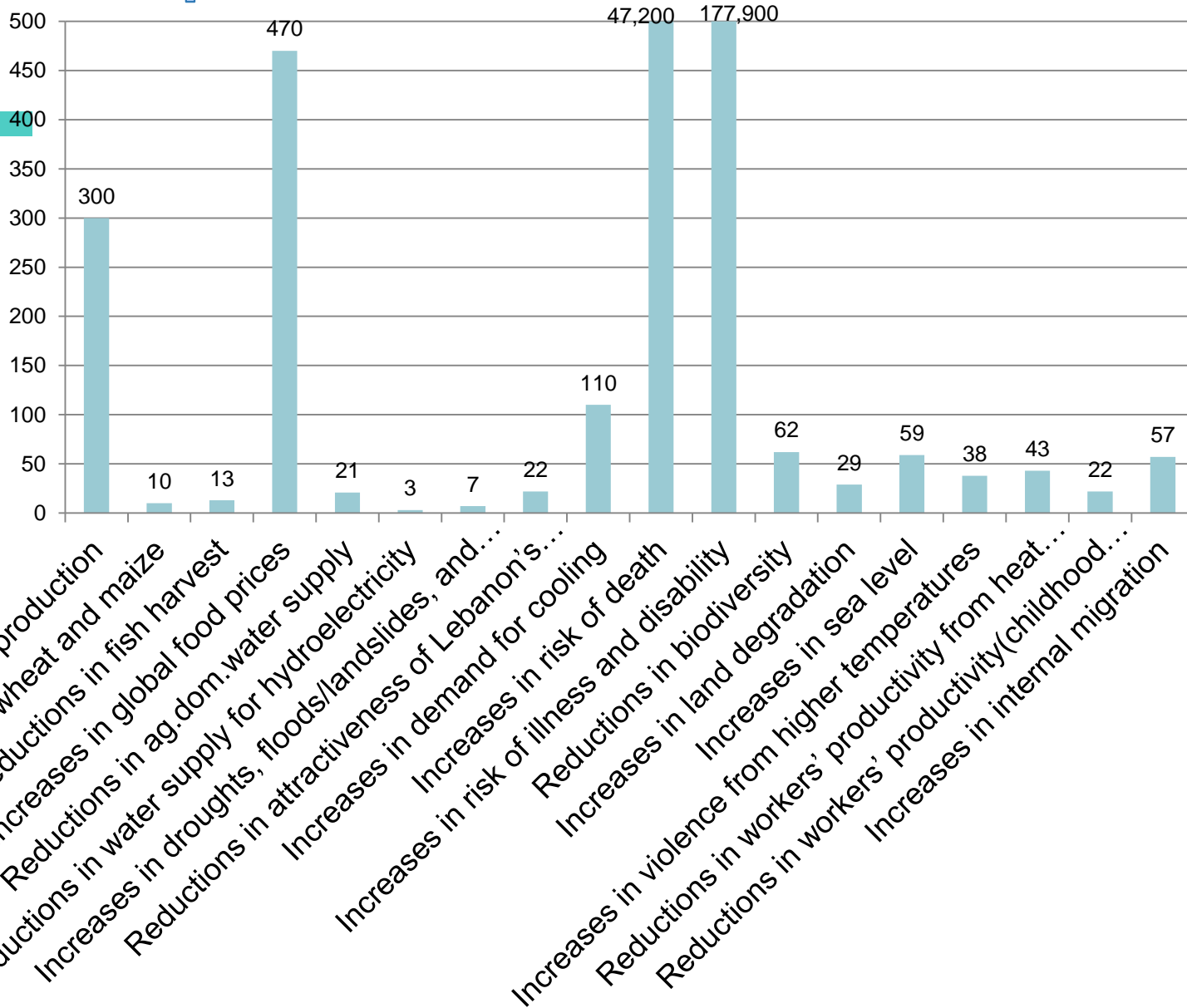
**Economic cost  
of climate change**

- Climate change bill on the Lebanese economy
- Most vulnerable sectors from another perspective

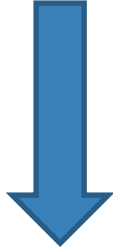
# Food prices

# Public Health

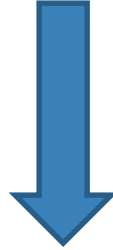
Costs in 2020  
(million USD)



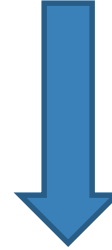
## Assessment Outputs



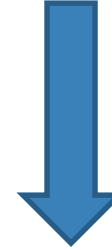
**National  
communications  
and BURs**



**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

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

- How does the deployment of the selected public instrument package

estimated at **USD 46m**

...

- ... catalyse private sector investment ?

... of **USD 279m**

- ... generate economy-wide savings?

... of **USD 97m** over 20 years

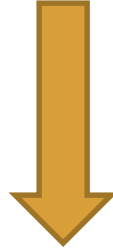
- ... increase the affordability of RE for end-users?

... by lowering the LCOE from USD 10 cents to 8.2 cents per kWh

- ... benefit the environment?

... by reducing carbon emissions by -5.2 million tonnes over 20 years

## Other Assessment Outputs



**Academic  
research**



**Regional  
initiatives**

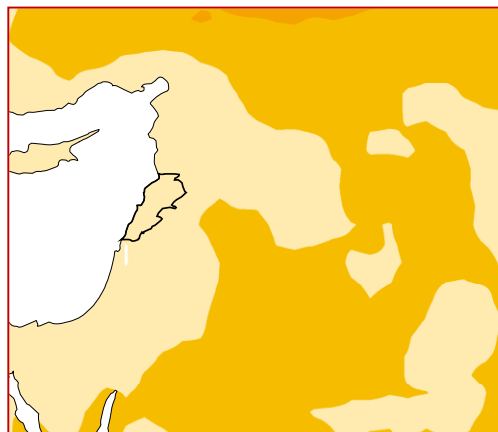
RICCAR  
ACCWAM  
CLimasouth



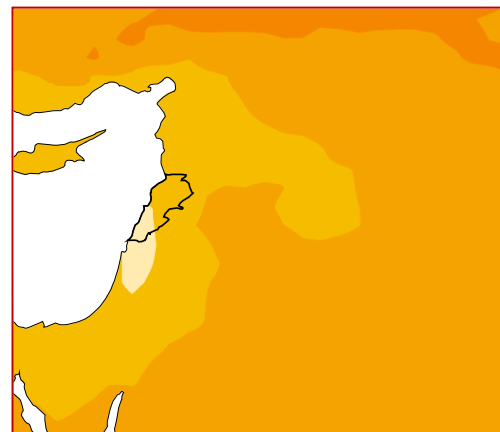
# Increase in temperatures

**+ 1.2°C**

RCP4.5 (2046-2065)

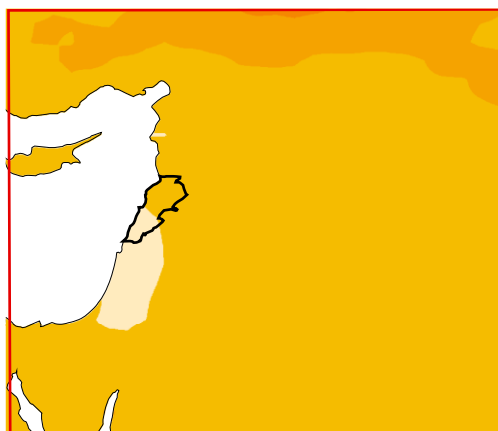


RCP8.5 (2046-2065)



**+ 3.2°C**

RCP4.5 (2081-2100)



RCP8.5 (2081-2100)

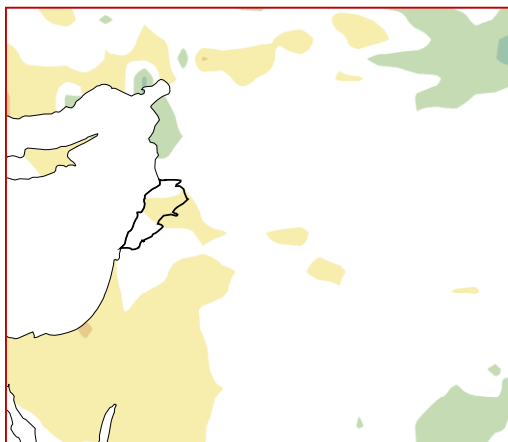


Source | Adapted from ESCWA, 2015

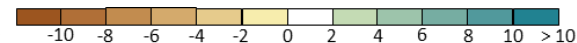
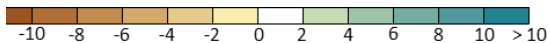
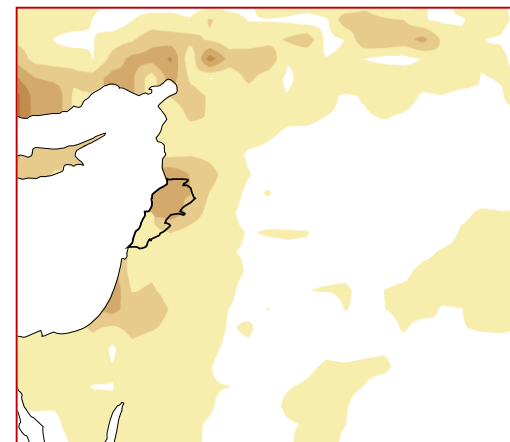
# Decrease in precipitations

- 4%

RCP4.5 (2046-2065)

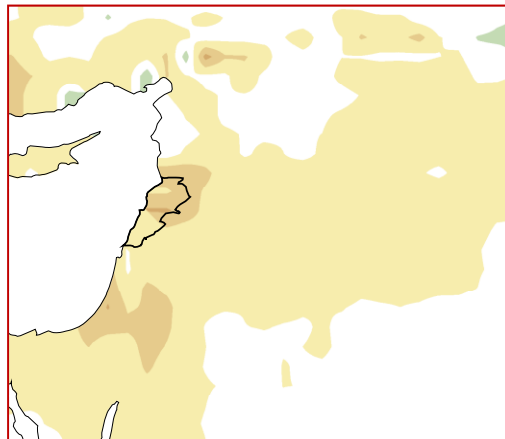


RCP8.5 (2046-2065)

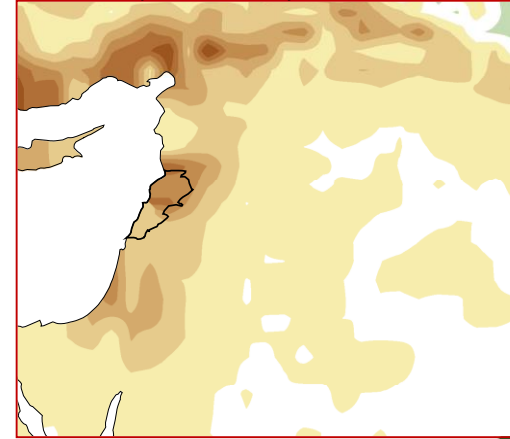


- 11%

RCP4.5 (2081-2100)



RCP8.5 (2081-2100)



Source | Adapted from ESCWA, 2015

# 2.

... to  
appropriate  
climate policies

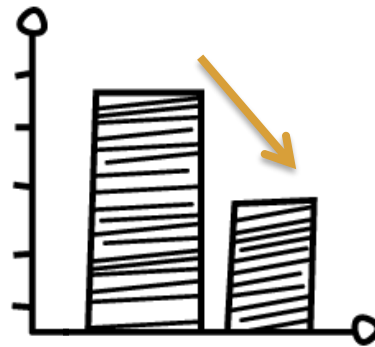
# Climatizing national partners

- **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<sub>2</sub> emissions

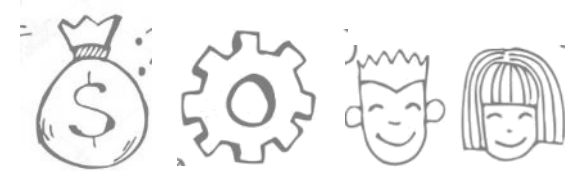


15%



Unconditional target

30%

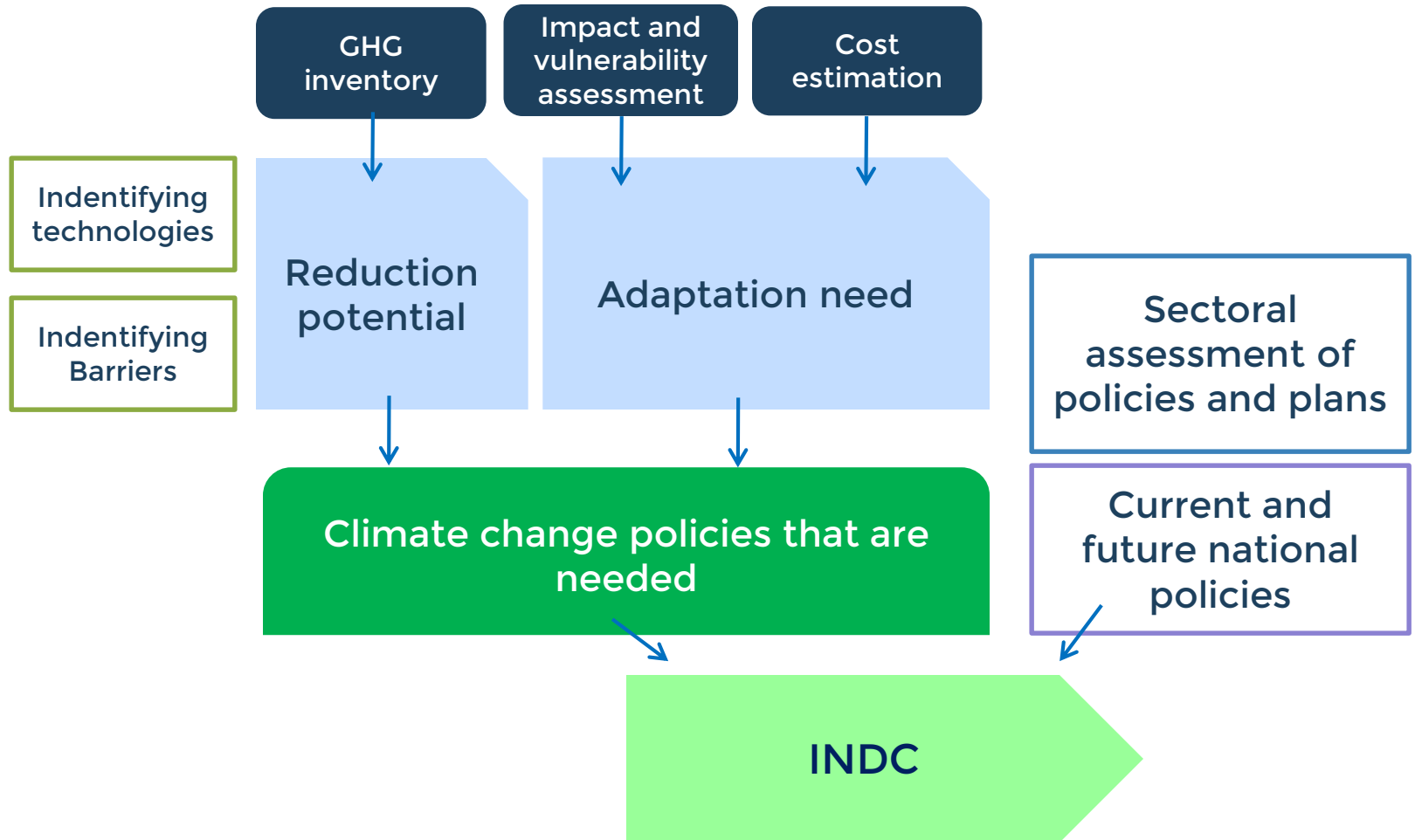


Conditional to finance, technical support and capacity building

3.

... while building  
a solid network

# INDC development



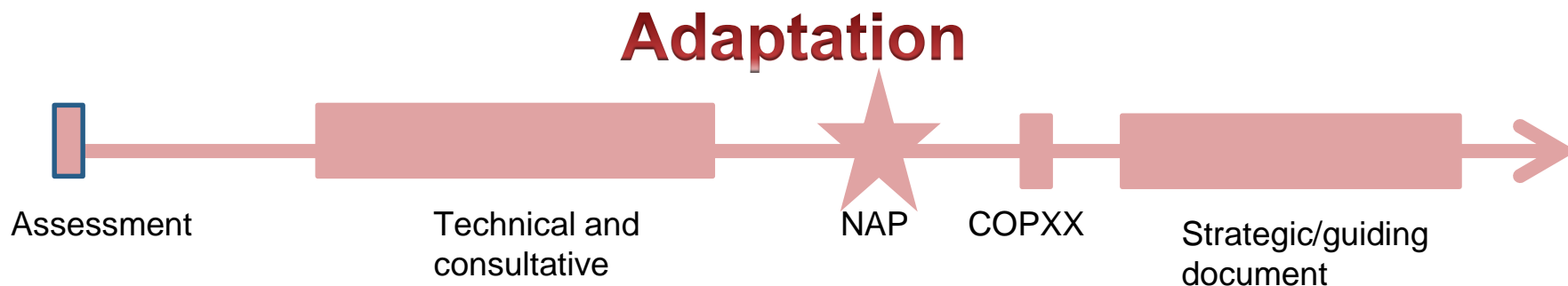
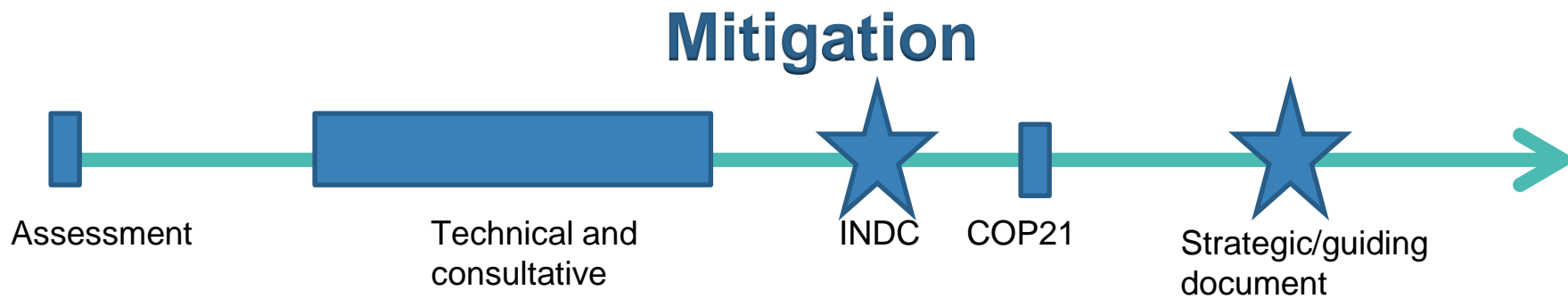
# Successful ministerial coordination allowed Lebanon's commitment at COP 21

Lebanon presented its **Intended Nationally Determined Contribution** in December 2015 for the Paris agreement.





# Replicating the INDC experience



# Thanks!

 @climatechange**lb**  
#climatechange**lb**

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