

Making the business case for private sector action on climate change

Climate Change Adaptation Market Study (Turkey)

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Businesses and climate: changing perceptions



World Economic Forum:
Top Risks for Economy,
2010-2020

Table 5 Top 10 risks by likelihood and impact combined

Ranking	Likelihood x Impact
1	Climate change
2	Fiscal crises
3	Economic disparity
4	Global governance failures
5	Extreme weather events
6	Extreme energy price volatility
7	Geopolitical conflict
8	Corruption
9	Flooding
10	Water security

How to support businesses to prepare for climate change?

- Develop new approaches to help businesses manage the risks, and unlock the opportunities, caused by a changing climate
- Identify innovative, market-based interventions and financial products to improve the climate resilience of businesses
- Identify ways to create an enabling environment for promoting business action on climate resilience

Turkey: market study partners

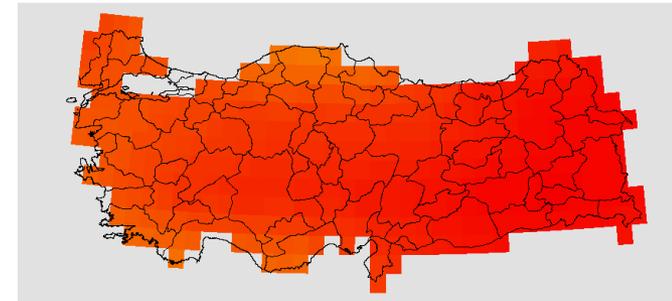
- Funded by EBRD and IFC
- Supported by TOBB (*Union of Chambers and Commodity Exchanges of Turkey*) and Ministry of Environment and Urbanisation



Climate change projections in Turkey

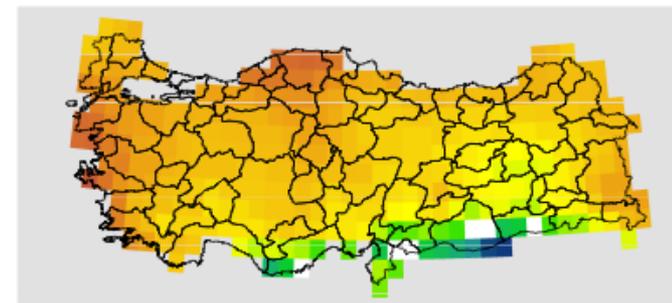
- Temperature increases
- Increased intensity and duration of hot spells
- Rising sea levels
 - Flood risk in low-lying areas – river deltas and coastal cities
- Southern Turkey – decreases in annual precipitation
- Northeast Turkey – possible slight increases in annual precipitation
- Overall increased drought risk
- More intense precipitation events
 - ‘Flash’ flooding

June -
August



Mean temperature change
Degrees celcius
High : 1.8
Low : 0.7

June -
August



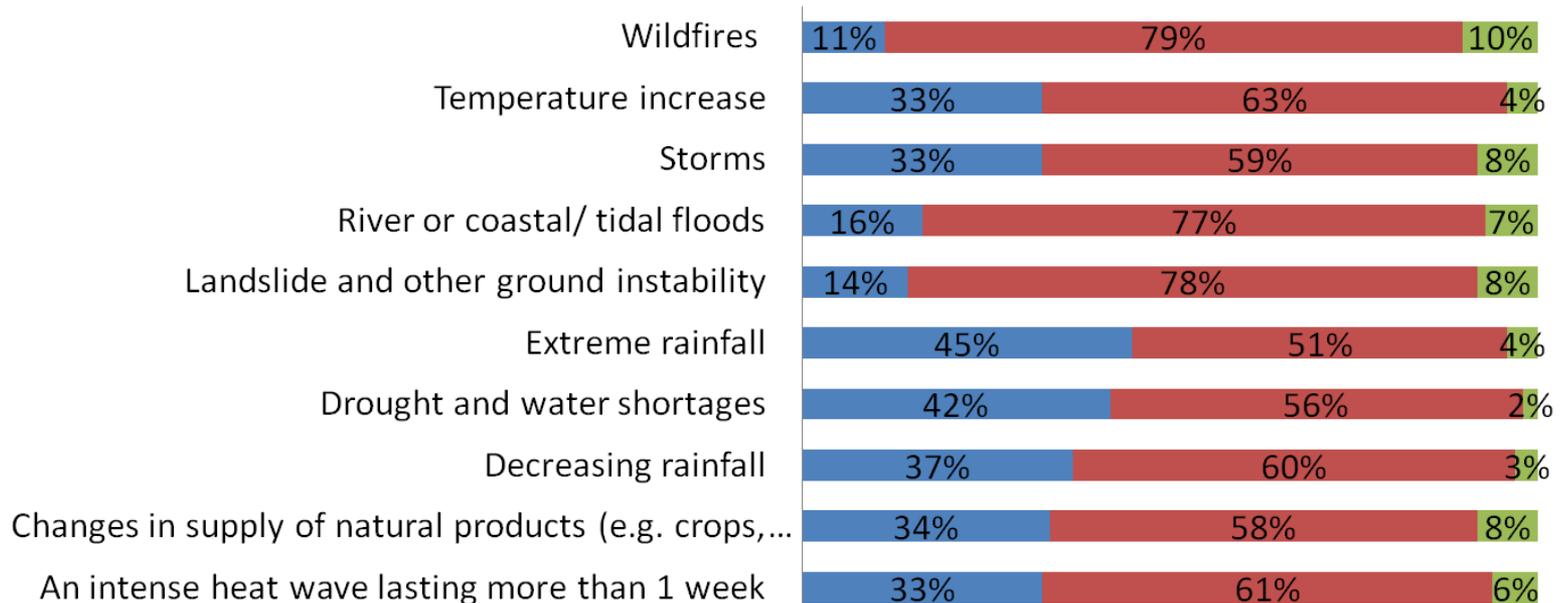
percentage
change
10
0
-15

Extreme weather: businesses perceptions

A third of Turkish businesses responding to a questionnaire state they have been significantly affected by extreme weather events in the last three years

In the last three years, has your company actually been significantly affected by any of the types of the events listed above? (n=98)

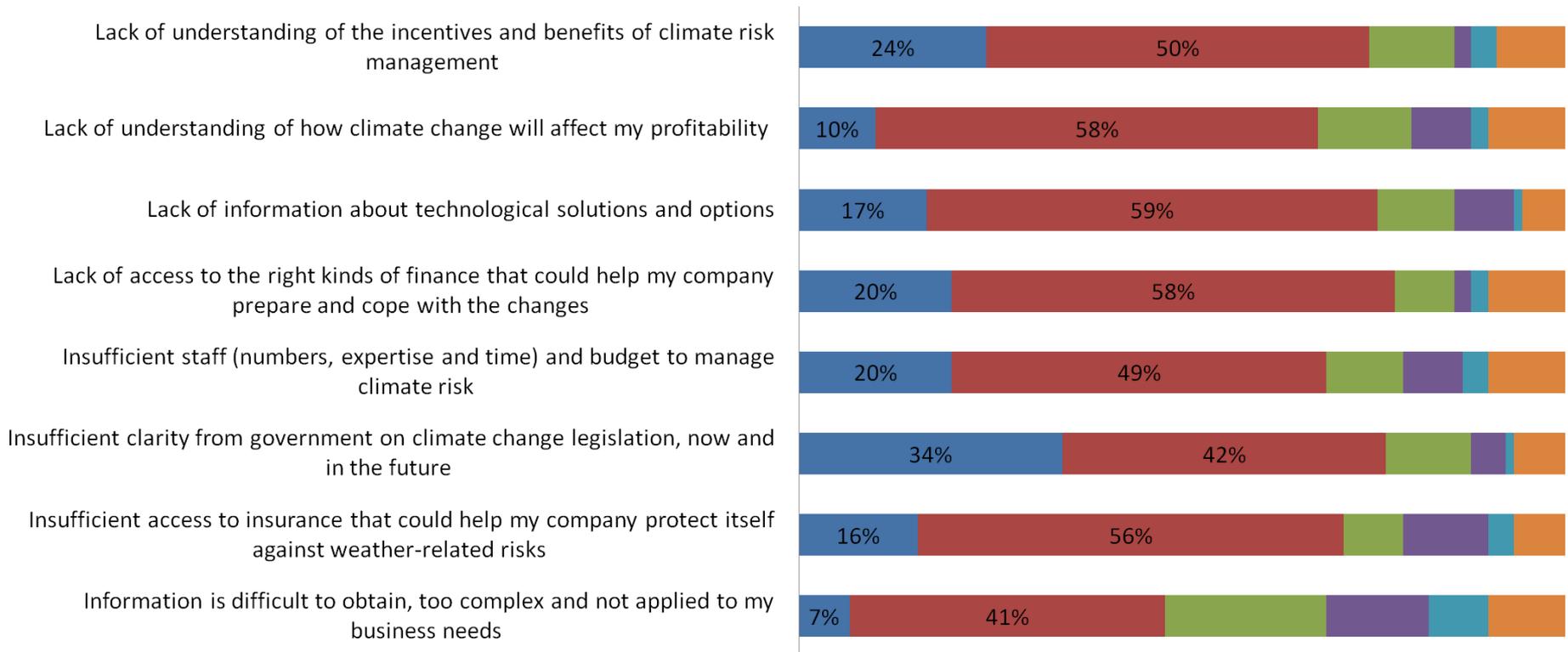
■ Yes ■ No ■ Don't know



Barriers to action: business views

What do you view as the main barriers preventing your business from understanding and taking action to adapt to a changing climate? (n=90)

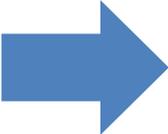
■ Very significant barrier
 ■ Significant barrier
 ■ Neutral
 ■ Insignificant barrier
 ■ Very insignificant barrier
 ■ Don't know / No opinion



What stops businesses from acting on climate resilience?

- Low levels of awareness among businesses of climate change and its impacts
- Businesses have not yet begun to internalise concerns about climate change within their organisations
- Predominance of SMEs:
 - Typically have shorter planning horizons
 - May lack capacity to consider climate change in business planning
- High discount rates undervalue future adaptation
 - Access to the right kind of finance is limited

Priority business sectors for action on climate resilience

- Identified by combining and ranking:
 - Economic indicators
 - Climate vulnerability index
 - Food production and processing
 - Tourism
 - Retail and wholesale trade of household products
 - Manufacture of textiles
 - Electric power generation, transmission and distribution
- 

Private sector in Turkey dominated by SMEs

Priority sector key climate risks (1)

Climate driver	Consequence for private sector
Food production and processing	
Increased water scarcity	<ul style="list-style-type: none">• Decreasing water quality and groundwater levels• Increasing costs for water supply & treatment• Conflicts over water use
Increased hot spells	<ul style="list-style-type: none">• Increasing costs for workplace cooling
Tourism	
Increased water scarcity	<ul style="list-style-type: none">• Increased costs due to more complex and energy intensive groundwater abstraction• Conflicts over water use
Increase in temperature	<ul style="list-style-type: none">• Increased costs for space cooling systems• Increased costs for energy for cooling
Increase in high intensity rainfall events leading to flooding	<ul style="list-style-type: none">• Asset damage and operational disruption• Workforce and customer health and safety issues
Increasing risk of wildfires	<ul style="list-style-type: none">• Workforce and customer health and safety issues

Priority sector key climate risks (2)

Climate driver

Consequence for private sector

Wholesale trade and retail trade of household goods

Increase in temperature

- Increased costs due to increased demand for space cooling systems
- Increased costs for energy for cooling

Manufacture of textiles and wearing apparel

Decreasing groundwater levels

- Increasing costs associated with water supply
- Conflicts over water use

Increased hot spells

- Increased heat stress for workforce

Electricity production, transmission and distribution

Reduction in water for hydropower plants

- Reduced energy output => reduced revenues

Increased risk of flooding and landslides

- Damage to energy generation facilities

Short list of climate resilience investments

- Short list for further market analysis based on the greatest need to scale up finance:
 - Water efficiency in agriculture
 - Water efficiency in agri-processing /manufacturing
 - Climate resilience in buildings



Market analysis for water-efficient irrigation

- Investments in water-efficient irrigation give good potential returns on investment
 - As measured by *internal rate of return* (IRR)
 - Good financial returns regardless of water price
 - Water-efficient drip irrigation:
 - Low water price IRR = 57.3%
 - High water price IRR = 64.4%



Market analysis for water efficiency in agri-processing/manufacturing

- Investment performance is highly sensitive to water price:
 - Improved process efficiency
 - Low water price (USD 0.19/m³) IRR = -7.3%
 - High water price (USD 0.29/m³) IRR = 7.2%
 - Recycling and reusing process/grey water
 - Low water price (USD 0.11/m³) IRR = 7.2% (break-even)
 - High water price (USD 0.19/m³) IRR = 30.1%



Summary of market analysis for climate resilience investments in buildings

- Investments which could be suitable for financing under commercial terms:
 - Building insulation IRR = 9.0%
 - Green and blue infrastructure IRR = 13.3%
- Other investments would bring climate resilience benefits but may be less commercially viable:
 - Flood protection
 - Green roofs
 - Passive ventilation and cooling
 - Heat reflective glazing
 - Rainwater harvesting/ recycling
 - Surface water drainage system



Key messages

- Extreme weather is already affecting Turkish businesses
 - And illustrates how they are vulnerable to projected climate change
- However, action on adaptation in Turkey is currently very low
 - **Better information** and **targeted finance** can help
- Some key adaptation actions analysed in this pilot study make business sense today for:
 - Water efficiency in irrigation
 - Water efficiency in agri-processing and manufacturing
 - Climate-resilient buildings
- These investments in climate resilience can be financed in a commercially oriented way
- **There are significant commercial opportunities for investing in climate resilience in Turkey**

New operations generated by the market study

EBRD has used the market study findings to develop new operations in Turkey:

- New EBRD/FAO partnership on scaling up investment for irrigation modernisation
 - Development of new financing mechanisms for irrigation upgrades
- Resource Efficiency Credit Line (EUR 50 million)
 - Finance and technical support for water efficiency improvements in manufacturing
- Turkey Residential Retrofitting Financing Facility (EUR 150 million)
 - Includes consideration of future climate conditions on energy use (cooling/heating)
 - Includes water efficiency measures in buildings

Thank you

