Climate Change and Temperature Warming in Qatar

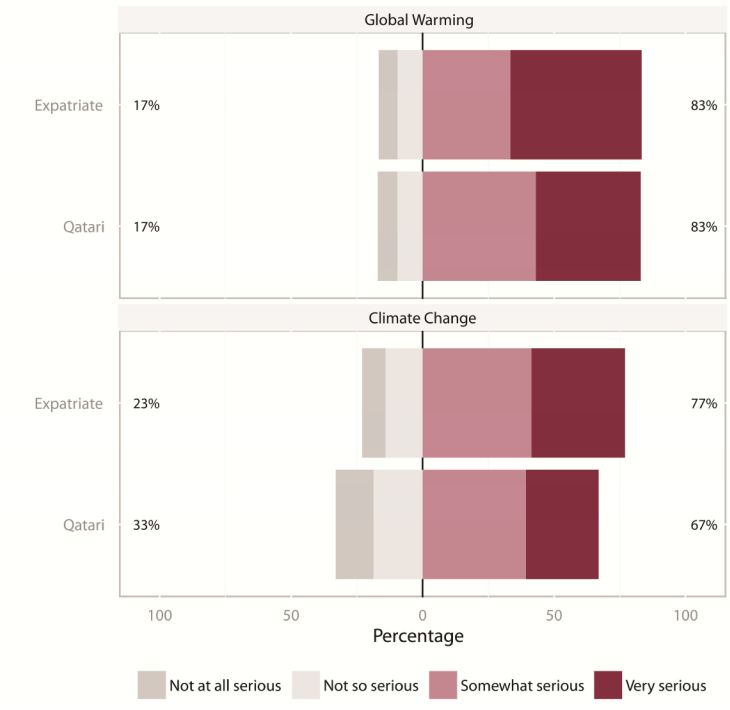
Issues, Public Perceptions, and Policy Options

In October 2015 the Social and Economic Survey Research Institute (SESRI) at Qatar University surveyed representative samples of Qatari nationals (769) and white-collar residents (762) to understand better their views about climate change and its potential impact on Qatar.

83% of both Qataris and expatriates view global warming as a "somewhat" or "very" serious problem for Qatar.

In the survey, both Qatari and expatriate respondents were randomly assigned two different descriptions of the problem of climate change: one that posed the issue as a matter of "climate change" generally, and one that described it as a specific problem of "global warming."

When asked about "global warming," 39 percent of Qataris said they considered the problem to be a "very serious" issue, with only 8 percent deeming it "not serious at all." By comparison, when asked to assess the more general issue of "climate change," only 30 percent of Qataris said they believe it is a "very serious" problem, and a full one-third said it is "not too serious" (17%) or "not serious at all" (14%).



Among both respondent groups, therefore, the term *global warming* is associated with greater emotional engagement and support for personal and national action than the term *climate change*.

Summary of Findings

1. There is a clear concern in Qatar about climate change, especially about global temperature warming.
2. White-collar expats are more likely than Qataris to deem climate change a problem.
3. The terminology used to describe climate change has an impact on perceptions.
4. Most Qataris and white-collar residents prefer green areas and parks over other types of infrastructure development.

Recommendations

1. Map the "urban heat island effect" in metropolitan Doha, Lusail, Al-Khor, and Al-Wakra.
2. Target urban hotspots for green development.
3. In new green areas, tap non-conventional water resources, including local grey water.
4. To increase impact, state communications should employ the term *global warming* (إحتباس حراري).

SESRI
معهد البحوث الاجتماعية والاقتصادية المسحية
The Social & Economic Survey Research Institute
Policy للسياسات
جامعة قطر
QATAR UNIVERSITY

An October 2015 study published in *Nature Climate Change*[1] used high-resolution models to show that Doha is on a climate change path that will likely see dangerously high temperature levels by the end of this century. The findings supported previous results from Oxford University and NASA researchers on climate change in the GCC region. Adaptation strategies in urban settings require pro-active strategies.

57% of Qataris and **74%** of expats prioritize new parks and green space over other infrastructure development.

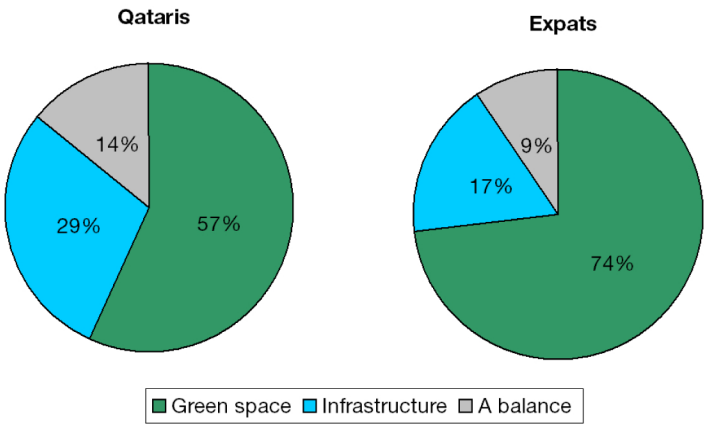
The results of SESRI's survey reveal, in the first place, strong public support for more green areas in Qatar, even if this investment comes at the expanse of other types of development.

Nearly two in three respondents (63 percent) stated that they would like to see an increase in the number of parks and other green spaces in Qatar, "even if it means less infrastructure and development (*e.g.*, wider roads or shopping malls)."

Conversely, only 24 percent said they would prioritize infrastructure and development outright, while the remainder (13 percent) preferred some compromise between the two.

The "Urban Heat Island Effect"

- When a city grows, it replaces a natural environment with a large quantity of heat-absorbing concrete and asphalt for buildings and roads. The more it expands, the more heat it absorbs, making it significantly hotter than its surroundings. This is particularly the case in Doha, where urban sprawling has been rapid.
- This phenomenon is known as the "urban heat island effect," and is already affecting Doha and other Gulf capitals. And with a business-as-usual approach to urban expansion, it is only set to get worse.
- Unfortunately, the only ground-based data on this phenomenon in Doha date to 2002 and are outdated, while more recent satellite imagery is not precise enough to afford a street-level view of urban hotspots. In addition, no other heat mapping survey has ever been conducted in another city of Qatar.



Policy Recommendations

The survey results suggest several practical steps to raise awareness about and help alleviate the issue of temperature warming in Qatar's cities.

Precise mapping of urban heat island effect in Qatar

Building on recent findings using satellite imagery[2], a more high-resolution mapping of Qatar's urban hotspots, both in and outside Doha, would allow development planners to target locations that feature particularly high temperatures.

Create green areas, even small ones, in hotspots

The survey data reveal that additional green space is a priority for most Qataris and expatriates alike. Even small green areas can help cool down an urban micro-climate, sometimes by as much as 10°C. This would offer a cost-efficient alternative to air conditioning consumption while also helping to mitigate air pollution risks in dense city areas. The use of non-conventional water resources (TSEs or "grey water") for irrigation of new green spaces would represent an additional cost-saving measure.

Increase shaded areas in parking lots

As a matter of public safety, large car parking lots, which tend to store large amounts of solar heat, should be shaded to avoid health risks associated with high temperatures, especially among more at-risk populations (*e.g.,* young children, pregnant women, the elderly, and persons with heart disease).

Communicate in the most effective terms

To augment the impact of state communications and awareness campaigns, the terminology *global warming* (إحتباس حراري) should be adopted in place of the term *climate change*. In Qatar and elsewhere, the former is associated with greater emotional engagement and can better help drive behavioral changes, for instance with respect to energy conservation.

[1] Pal, J. & Eltahir, E (2016). "Future temperature in southwest Asia projected to exceed a threshold for human adaptability." *Nature Clim. Change* 6, 197–200.

[2] Al Kuwari, NY., Ahmed, S., & Kaiser, M. (2016). "Optimal Satellite Sensor Selection Utilized to Monitor the Impact of Urban Sprawl on the Thermal Environment in Doha City, Qatar." *J Earth Sci Clim Change* 7, 326.