

TAKING STOCK OF GLOBAL CLIMATE ACTION

NOVEMBER 18, 2016



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*As recorded on the Non-State Action Zone for Climate Action (NAZCA)¹
Prepared by the Yale Data-Driven Environmental Solutions Group²*

November 18, 2016

¹ <http://www.climateaction.unfccc.int>

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Climate action from cities, states, and regions ("sub-national" actors) and businesses, investors and civil society organizations ("non-state" actors) has grown rapidly. A number of platforms and organizations have helped to galvanize and track this groundswell of climate action. This memo draws on Non-State Actor Zone for Climate Action (NAZCA), maintained and operated by the United Nations Framework Convention on Climate Change (UNFCCC), and a network of initiatives including CDP, the carbonn Climate Registry (cCR), The Climate Group, Investors on Climate Change, UN Global Compact, Global Covenant of Mayors, UNEP-DTU Climate Initiatives Platform and Climate Bonds Initiative. Here we provide an overview of the trends and patterns in sub-national and non-state climate action as recorded on NAZCA as of November 8, 2016.

More than 12,549 climate actions on NAZCA include:

Cities from 118 countries are taking action on climate change on NAZCA. These cities represent 10.2 percent of the global population.

Over half (165 cities) of the top Global 300 Cities by GDP Purchasing Power Parity (GDP PPP) are engaged on NAZCA, representing \$27.87 trillion USD.

211 regions from 31 countries representing 12.3 percent of the global population are taking action on climate change as recorded on NAZCA.

NAZCA's 2,138 companies from 145 countries represent \$36.6 trillion USD in revenue. The total revenue represented is roughly equivalent to the GDPs of United States, China, Japan, Germany, and the United Kingdom. One-third of the largest companies representing \$29.5 trillion USD comprise 80 percent of this total revenue.

6 NAZCA investors are each making renewable energy investments greater than \$1 billion.

16 of the 20 largest banks representing \$1.7 trillion USD by market capitalization are represented on NAZCA.

26 colleges and universities with endowments totaling \$38 billion USD are taking climate actions recorded on NAZCA.

2,154 community or region-wide emission reduction commitments from nearly 1,853 cities and 86 regions contribute 2.8 gigatons of carbon dioxide equivalent (Gt CO₂e) in emission reductions.

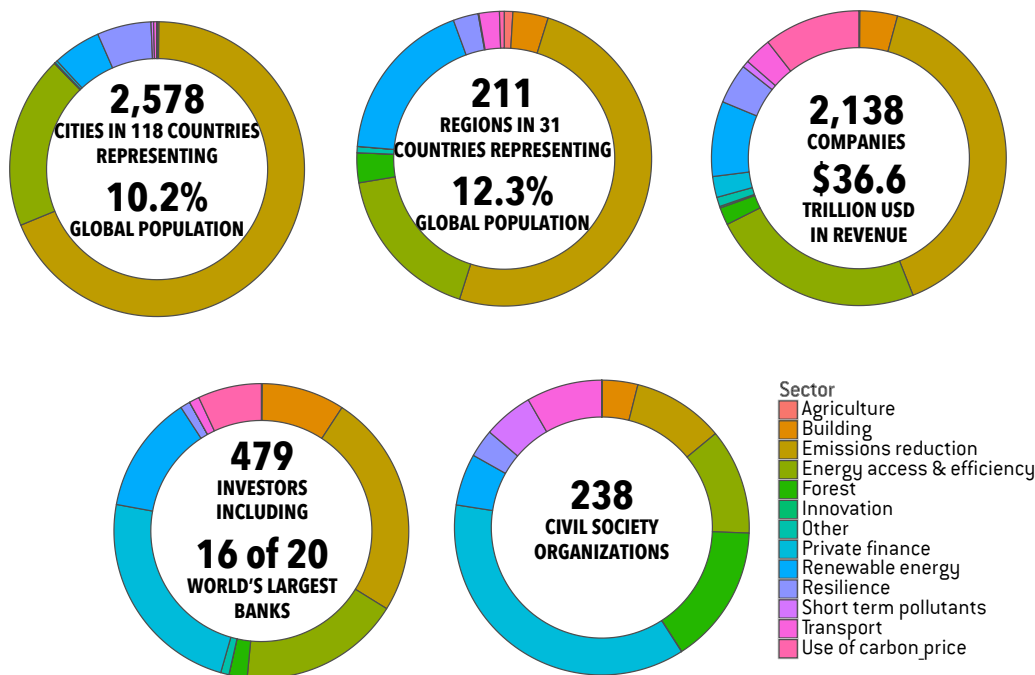


Figure 1. Sectoral trends in global climate actions.

CITIES AND REGIONS

CITIES AND REGIONS

2,578 cities and 211 regions are taking climate actions as registered on NAZCA.

POPULATION

2,578 cities taking individual and cooperative commitments representing 10.2 percent of the global population (757.7 million).

211 regions taking individual and cooperative commitments 12.3 percent of the global population (908 million).

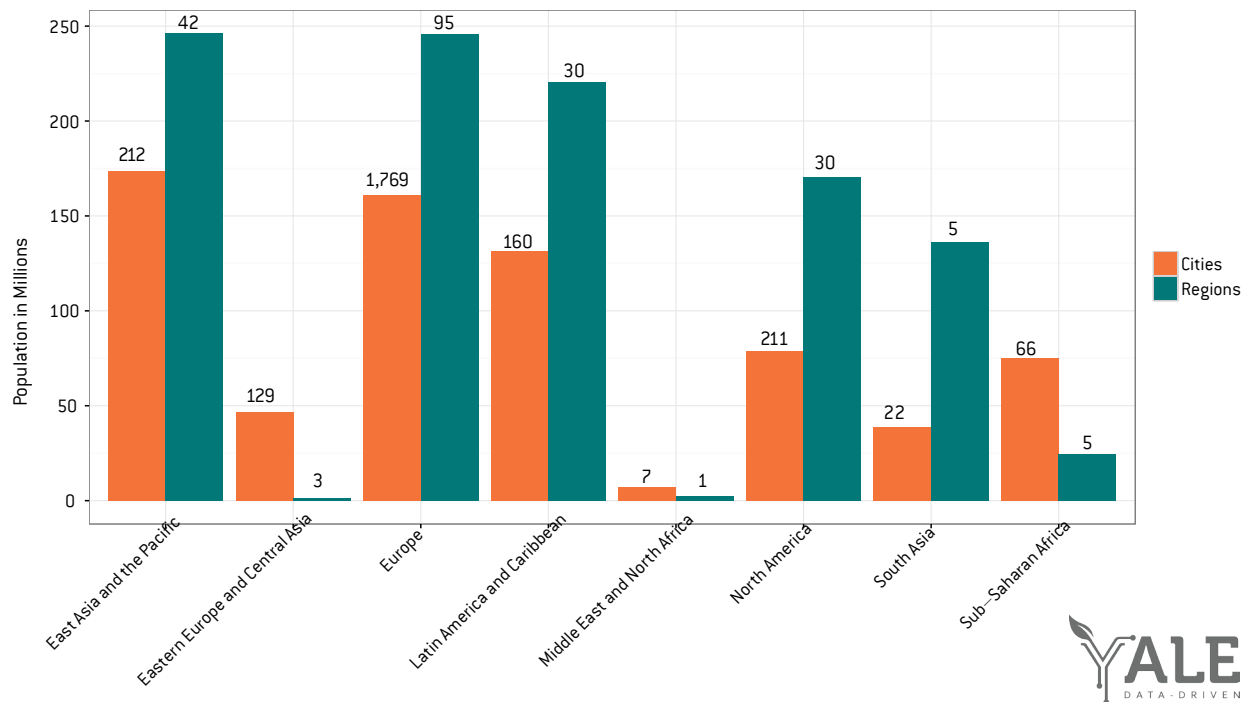


Figure 2. Regional population distribution of cities and regions taking global climate action.



GEOGRAPHIC DISTRIBUTION OF THE CITIES AND REGIONS ENGAGED IN CLIMATE ACTION, AND THEIR POPULATION

East Asia & Pacific: 212 cities and 42 regions

- City: 173.5 million
- Region: 246.1 million

Europe & Central Asia: 129 cities and 3 regions

- City: 46.9 million
- Region: 1.4 million

Europe: 1,769 cities and 95 regions

- City: 161.1 million
- Region: 246 million

Latin America & Caribbean: 160 cities and 30 regions

- City: 131.5 million
- Region: 220.7 million

Middle East & North Africa: 7 cities and 1 regions

- City: 7 million
- Region: 2.3 million

North America: 211 cities and 30 regions

- City: 79 million
- Region: 170.4 million

South Asia: 22 cities and 5 regions

- City: 38.7 million
- Region: 136 million

Sub-Saharan Africa: 66 cities and 5 regions

- City: 75.2 million
- Region: 24.7 million

What are the most and least populous cities on NAZCA?

- The range of the populations from NAZCA's cities and regions stretches from Tolar Grande, Argentina (population: 148) to Turkey, Istanbul (population: 14,025,646)

TOP GLOBAL CITIES BY GDP

Over half (165 cities) of the top Global 300 Cities by GDP Purchasing Power Parity (GDP PPP) are engaged on NAZCA, representing \$27.87 trillion USD.

COOPERATIVE INITIATIVES

Since May 2020, a total of 136 jurisdictions have signed or endorsed the Under 2 Coalition's commitment by sub-national governments to reduce their greenhouse gas (GHG) emissions toward net-zero by 2050. The Coalition now represents 30 percent of the global economy, \$22 trillion in GDP and 832 million people.¹

¹ UNFCCC. Non-state Actor Zone for Climate Action (NAZCA). Accessed 8 November 2016: <http://climateaction.unfccc.int/cooperative-initiative/under-2-mou/emissions-reduction>.

MITIGATION POTENTIAL

2,154 community or region-wide emission reduction commitments from nearly 1,853 cities and 86 regions contribute 2.8 gigatons of carbon dioxide equivalent (Gt CO₂e) in emission reductions.

- By 2020: 0.92 gigaton
- By 2030: 0.56 gigaton
- By 2050: 1.32 gigaton

Uppsala, Sweden even made a commitment to reduce emissions 110 percent by 2070.

TRENDS IN STRUCTURE OF CLIMATE ACTION COMMITMENTS (TIMELINES, EMISSIONS TYPE, EMISSIONS BOUNDARY, APPROACH, QUANTIFIABILITY, ETC.)

Commitments range from short-, to mid-, to long-term:

- Short (pre-2020) - 8,267 commitments
- Mid (mid-2020 to 2030) - 1,511 commitments
- Long (post-2030) - 4,861 commitments

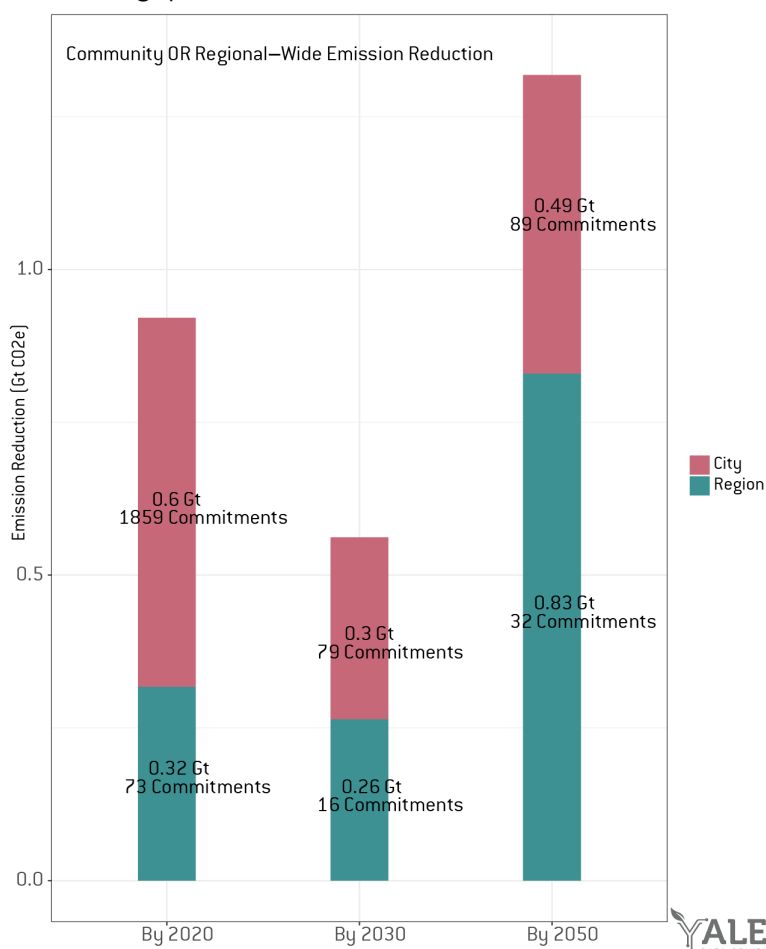


Figure 3. Emissions saving potential of cities and regions that make community-wide or regional-wide commitments.

COMPANIES

COMPANIES

2,138 companies from 145 countries, representing \$36.6 trillion USD in revenue are taking climate actions recorded on NAZCA. One-third of the largest companies representing \$29.5 trillion USD comprise 80 percent of this total revenue.

- The total revenue represented is roughly equivalent to the GDP[s] of United States, China, Japan, Germany, and the United Kingdom.²
- These individual commitments are from companies in the food and beverage processing (261 companies), Electric Utilities & Independent Power Producers & Energy Traders (248 companies), and Technology and Hardware (198) sectors.

378 companies and investors from the CDP Global 500³ (76 percent) representing more than \$14.1 trillion USD are engaged on NAZCA.

- 247 of these companies (247 out of 378) include reduction targets (in %) for emissions through 674 commitments.

TOP EMITTING SECTORS

613 of the Forbes 2000 companies are on NAZCA, representing \$29.5 trillion USD in revenue.

- Materials: 44 of 189 Forbes 2000 companies in this sector are on NAZCA.
- Utilities: 28 of the 109 Forbes 2000 companies in this sector are on NAZCA.
- Energy: 25 of the 101 Forbes 2000 companies in this sector are on NAZCA.

TOP EMITTING COMPANIES

28 of the 90 fossil fuel and cement companies responsible for approximately two-thirds of global historic greenhouse gas emissions⁴ have climate commitments on NAZCA.

COOPERATIVE INITIATIVES

170 airports representing more than 36 percent of the world's passenger traffic, have been accredited for carbon management, and 26 airports have achieved carbon neutrality through Airport Carbon Accreditation. In 2015 - 2016, accredited airports reduced CO₂ emissions under their direct control by 206,000 tons, compared to the average emissions of the 3 previous years.⁵

The Refrigerants, Naturally! initiative works to shift cooling technology towards natural refrigerants and improve common fluorocarbon based technology. At the end of 2016, the initiative will have placed 5 million units using natural refrigerants worldwide since it began 12 years ago, preventing the emissions around 30 million metric

² World Bank. (2014). National GDP data. Retrieved from: <http://databank.worldbank.org/data/download/GDP.pdf>.

³ CDP Global 500 (the largest 500 companies in the world by market capitalization in the FTSE Global Equity Index Series, CDP 6 2013), 482 out of the 500 report to CDP.

⁴ Heede, R. Climatic Change, 122(1-2), 229-241(2014).

⁵ NAZCA. Accessed 8 November 2016: <http://climateaction.unfccc.int/cooperative-initiative/airport-carbon-accreditation/transport>.

tons of CO₂, approximately as much as the annual emissions of more than 6.1 million passenger vehicles.⁶

Through the RE100 cooperative initiative, 82 companies are, on average, halfway to achieving their goals of procuring 100 percent of their electricity from renewable sources. At least 9 companies had already reached 100% procurement as of January 2016. These companies create demand for over 100 TWh of renewable electricity, enough to power Morocco three times over.⁷

TRENDS IN COMPANY CLIMATE ACTIONS

Time Frames

- 67 percent (7,781) of commitments from companies on NAZCA include a specific timeframe:
 - Short (pre-2020): 3,651 commitments
 - Mid (mid-2020 to 2030): 324 commitments
 - Long (post-2030): 283 commitments

Emissions Reductions

- 1,661 companies have made 3,651 emissions reduction commitments on NAZCA.
- 2,956 commitments have set quantifiable emissions targets on NAZCA.

USE OF CARBON PRICE

666 (32%) of the companies on NAZCA are deploying carbon prices, 69 of these companies clearly mention a price or a price range.⁸

- Of these 69 companies, 47 specified a carbon price (rather than a price range).
- The carbon price specified on NAZCA ranges from \$2.53 to \$150.66.
 - A recent CDP report suggests even broader growth in this area, reporting 1,200 companies disclosing their plans or current practice of placing a price on their carbon emissions.⁹

Companies who are big emitters are acting: over half of the 666 companies setting a carbon price on NAZCA come from the Technology and Hardware sector (54 companies) and the Oil and Gas sector (51 companies).

⁶ NAZCA. Accessed 8 November 2016: <http://climateaction.unfccc.int/cooperative-initiative/refrigerants,-naturally/short-term-pollutants>.

⁷ (NAZCA). Accessed 8 November 2016: <http://climateaction.unfccc.int/cooperative-initiative/re100/renewable-energy>.

⁸ According to the data provider CDP's report Putting a price on risk: Carbon pricing in the corporate world, however, many companies do have detailed plans of setting up internal carbon prices that are not captured on NAZCA. Source: CDP. (2015). Retrieved from: <https://www.cdp.net/CDPResults/carbon-pricing-in-the-corporate-world.pdf>.

⁹ CDP. (September 2016). Embedding a carbon price into business strategy. Retrieved from: <https://www.cdp.net/es/articles/media/press-release-major-multinationals-at-forefront-of-drive-to-price-carbon-and-meet-climate-targets-but-many-companies-still-unprepared>.

Though the Business Leadership Criteria on Carbon Pricing cooperative initiative, 69 companies with a total market capitalization of over \$2.0 trillion USD across 20 sectors have committed to integrate carbon pricing into corporate long-term strategies and investment decisions.¹⁰

In terms of percentage reduction, the level of confidence/quality on emissions targets varies, and there are targets set for different time periods or on different sectors.

163 commitments set their emission reduction target in terms of emissions reductions per tonne of their product.

¹⁰ NAZCA. Accessed 8 November 2016: <http://climateaction.unfccc.int/cooperative-initiative/business-leadership-criteria-on-carbon-pricing/private-finance>.

INVESTORS

INVESTORS

16 out of the world's largest 20 banks, in terms of market capitalization,¹¹ are featured on NAZCA, with an aggregate market capitalization of \$1.74 trillion USD.

6 investors are each making renewable energy investments each greater than \$1 billion USD.

496 investors have made 1,776 individual commitments on NAZCA.

- 5 percent of these individual commitments (92) are made by 41 asset management firms and pension funds, from 16 countries.

Through the Portfolio Decarbonization Coalition cooperative initiative, 25 investors are overseeing the gradual decarbonization of a total of more than \$600 billion USD in assets under management (as of November 2015), dramatically surpassing the initiative's original target of decarbonizing \$100 billion USD by December 2015.¹²

GREEN BONDS

60 companies are making investments up to \$32.5 billion USD on climate actions recorded on NAZCA.

The majority (95 percent) of these investments involve issuing green bonds for climate projects. 44 entities are issuing over \$22.2 billion USD of green bonds for renewable energy projects.

6 of these companies are making renewable energy investments greater than \$1 billion USD.

67 investors are making combined investments up to \$43.8 billion USD on climate actions.

Cities (23), regions (22), companies (60), investors (67), and CSOs (9) have all committed to issuing green bonds.

Green bonds issuance commitments on NAZCA are worth \$90.6 billion USD.

- Investment in purchasing green bonds is excluded from this figure to avoid double-counting. NAZCA does not include details such as green bonds' issue date, maturity and outstanding amount.

¹¹ World's Largest Banks (by market capitalization, \$USb, March 11, 2016). Retrieved from: <http://www.relbanks.com/worlds-top-banks/market-cap>.

¹² NAZCA. Accessed 8 November 2016: <http://climateaction.unfccc.int/cooperative-initiative/portfolio-decarbonization-coalition/private-finance>.

- Compared to the nearly \$100 trillion USD active in the global bond market,¹³ the \$90.6 billion USD represented on NAZCA already exceed the 2016 investment total for this year (\$74.3 billion USD).¹⁴
 - Though they are not at scale yet, significant momentum has occurred in recent years in the labeled green bond market. CBI estimates that green bonds worth approximately \$11 billion were issued in 2013,¹⁵ an amount less than one-fourth of the \$42 billion worth of green bonds issued in 2015.¹⁶

Cities and Regions:

- 23 cities and 22 regions from 10 countries are issuing green bonds worth \$13.3 billion USD.
- These green bonds are issued for projects on low carbon transport, renewable energy, energy efficiency, sustainable water management and waste management, sustainable land use (forestry) and climate adaptation and resilience.

¹³ Climate Bonds Initiative (CBI). (2014). Retrieved from: <https://www.climatebonds.net/get-involved/investor-statement>.

¹⁴ Climate Bonds Initiative (CBI). (2014). Retrieved 30 November 2016 from: <https://www.climatebonds.net/get-involved/investor-statement>.

¹⁵ Climate Bonds Initiative (CBI). (2016). Explaining Green Bonds. Retrieved from: <http://www.climatebonds.net/market/explaininggreen-bonds>.

¹⁶ Climate Bonds Initiative (CBI). (2016). Green Bonds Market 2016; 2015 Total Explaining Green Bonds. Retrieved from: <https://www.climatebonds.net/>. <http://www.climatebonds.net/market/explaininggreen-bonds>

**CIVIL SOCIETY
ORGANIZATIONS
(CSOs)**

CIVIL SOCIETY ORGANIZATIONS (CSOS)

UNIVERSITIES AND COLLEGES

26 colleges and universities are taking climate actions on NAZCA. They represent \$38 billion USD in combined endowments (\$22.2 billion USD from Stanford alone).

14 of these commitments by universities and colleges are related to the cooperative Divest-Invest Global Movement.

- The collective endowment of the participating universities and colleges participating in the Divest-Invest Global Movement is \$22.77 billion USD (including Stanford), \$574 million USD (without Stanford).

NON-GOVERNMENTAL ORGANIZATIONS (NGOS)

NGOs from 46 countries, ranging from Viet Nam to Morocco, list climate actions on NAZCA.

CIVIL SOCIETY MOBILIZATION

Civil Society Organizations (CSOs) are involved in 18 of the 77 cooperative initiatives on NAZCA, with the largest participation in the Divest-Invest Global Movement (84 CSOs), the New York Declaration on Forests (66 CSOs), Low Carbon Sustainable Rail Transport Challenge (19 CSOs), and Global Green Freight Action Plan (17 CSOs).

At least 238 CSOs from 45 countries have made commitments on NAZCA, for a total of 330 commitments.

WIDER WORLD OF CLIMATE ACTION

Outside of NAZCA, over 13 million people, drawn from every country in the world, have signed petitions on issues related to climate change. Since December 2015, signatories have risen by 442,727, from 13,237,063 to 13,679,790.^{17, 18}

Over 20,000 people recently signed an online petition calling on American firms to offer fossil free 401(k) options.¹⁹

¹⁷ UNFCCC. Momentum for Action. (2016). Retrieved from: <http://momentforaction.org/>.

¹⁸ Hsu et al. (2015). The Wider World of Non-State and Sub-National Climate Action. Retrieved from: <https://campuspress.yale.edu/datadriven/files/2015/12/Assessing-the-Wider-World-of-Non-state-and-Sub-national-Climate-Action-2d5oghz.pdf>.

¹⁹ Fossil Free Funds, Divest Invest Individual & HIP Investor. (18 April 2016). Retrieved from: <http://divestinvest.org/individual/wp-content/uploads/sites/2/2016/04/Full-Length-20000-Call-for-Fossil-Free-401ks.logos-1.pdf>.

**HIGHLIGHTING EXAMPLES
OF CLIMATE ACTION IN
DEVELOPING COUNTRIES**

HIGHLIGHTING EXAMPLES OF CLIMATE ACTION IN DEVELOPING COUNTRIES

COOPERATIVE INITIATIVES

Since the Adaptation for Smallholder Agriculture Programme's launch in 2012, eight donors and six partners have mobilized financial support amounting to \$355 million USD, making this cooperative initiative the largest global financing source dedicated to supporting the adaptation of poor smallholder farmers to climate change.²⁰ Thirteen of the initiative's 43 projects could provide mitigation benefits of up to 30 million tons of CO₂e, approximately 38 percent of ASAP's 2020 target to mitigate 80 million tons of CO₂e, and support at least eight million poor smallholder household members.²¹

The en.lighten initiative has partnered with 85 countries to phase out incandescent lighting. The installed stock of the least efficient incandescent and halogen light sources have fallen by \$3.5 billion USD between 2010 and 2015, while the stock of efficient LED lamps has risen by nearly 2000 percent, increasing from 0.13 billion in 2010 to 2.4 billion in 2015.²²

²⁰ IFAD. (2015). The Mitigation Advantage: Maximizing the co-benefits of investing in smallholder adaptation initiatives. Retrieved from: https://www.ifad.org/documents/10180/3610585/mitigation_advantage.pdf/06ea9d33-c848-417f-8a35-f9823deccdb5; IFAD. Adaptation for Smallholder Agriculture Programme (ASAP). Retrieved from: <https://www.ifad.org/topic/asap/overview/tags/asap>.

²¹ IFAD. (2015). The Mitigation Advantage: Maximizing the co-benefits of investing in smallholder adaptation initiatives. Retrieved from: https://www.ifad.org/documents/10180/3610585/mitigation_advantage.pdf/06ea9d33-c848-417f-8a35-f9823deccdb5

²² NAZCA. Retrieved from: <http://climateaction.unfccc.int/cooperative-initiative/united-for-efficiency/energy-access-efficiency>

PROGRESS SINCE PARIS

PROGRESS SINCE COP-21 IN PARIS (DECEMBER 2015)

The 557 additional cities on NAZCA acting on climate change represent an additional 2.9 percent of the global population; 97 more regions add an additional 5.8 percent of the global population.

Over half (165 cities), up from 100, of the top Global 300 Cities by GDP Purchasing Power Parity (GDP PPP) are engaged on NAZCA, representing almost \$8 trillion USD more in GDP PPP.

An additional 560 businesses add \$4.1 trillion USD to the total revenue of businesses acting on climate change as recorded on NAZCA.

Mitsubishi UFJ Financial Group, with a market capitalization of \$69.43 billion USD, joined NAZCA since Paris, adding 4 percent to the market capitalization of banks acting on NAZCA.

More than 75 percent (up from one-fifth) of the Global 500 companies and investors are on NAZCA, representing more than \$14.1 trillion USD in revenue.

Participation from Sub-Saharan African cities on NAZCA has grown to 66 cities, increasing nearly 7-fold from the 8 cities participating in NAZCA in December 2015.

Participation from cities in Latin America and the Caribbean has grown to 160 cities, increasing by more than 5 times from the 23 cities on NAZCA in December 2015.