ISLANDS LIKE US

TRINIDAD & TOBAGO

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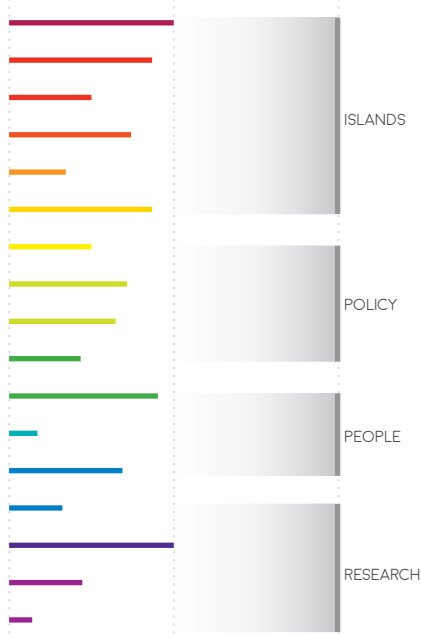


INTRODUCTION

SOME LIKE IT HOT—BUT NOT THIS HOT!

It's not in your imagination: the dry seasons are hotter than before and the rainy seasons are more destructive than they used to be.

According to 97% of climate scientists, it wasn't always this hot. The Trinidad and Tobago Meteorological Service reports that our annual mean temperature rose by 0.8 °C between 1961 and 2010.

And look at the rain. In last couple of years Trinidad has faced a level of storm and flood-related damage unknown in our lifetime.

Man's activities—everything from farming to fuel production— are changing the planet's climate, creating extremes of temperature and precipitation, and spawning more powerful storms. In the recent past, each year has brought higher global average temperatures.

Islands Like Us is a guide to what you, citizen of Trinidad and Tobago, should know about climate change. Think about:

1. the special challenges confronting us as well as other places similar to our country
2. what you can do to reduce your CO_2 emissions
3. what you should expect of government and business sectors.

WHOSE FAULT IS IT, ANYWAY?

It's you. But it's not only you. It's all of us from the minute an AC unit is switched on in a tiny bedroom to massive industrial activity. And it's you (but even more so your grandchildren) who will have to face the consequences. Not just the heat, but the floods, drought and stronger and more frequent storms. The ocean, determined not to disappear at our hands, will reclaim more of its space. WASA will have to take measures to keep salt out of its fresh water supply.

Nothing can be entirely your fault on a planet of over seven billion people, but the fact is that the choices you make—the food you eat, the way you travel, and the way you live at home—all contribute to the level of greenhouse gas in our atmosphere. Figures and statistics are helpful but sometimes we need a bit of help trying to contextualize or visualize the value of these numbers. That's one of the ways we hope this publication will be useful: by supporting data with sound examples so you can start to imagine the extent of the information we're offering. Let's say you've worked out your yearly emission of CO_2 equivalent. If you were to picture that amount in terms of how many hot air balloons you could fill, you've given yourself a powerful image—powerful enough, perhaps, to scare you. So, you want to change things. You can decide how many hot air balloons worth of CO_2 you'd like to emit each year. Any decision you make to reduce potential CO_2 emissions can help to mitigate the worst effects of our dependence on fossil fuels.

ISLANDS LIKE US

Surely the islands of Kiribati, cast as they have been into the middle of the Pacific Ocean and populated by people with their own traditions and language, are not like us. But for the purpose of this book, they are. Natives of Kiribati, like those of us living in Trinidad and Tobago, live in a Small Island Developing State (SIDS). Because of limited land mass and sensitivity to external shocks SIDS are the places most vulnerable to the effects of climate change while also being least responsible.

Least responsible? Perhaps Kiribati, you say, but not us. Our tiny oil- and gas-producing nation of 1.37 million people is one of the highest emitters of CO_2 equivalent per capita in the world. This is true, but on a global scale our emissions barely move the needle. We are responsible for less than 1% of global emissions.

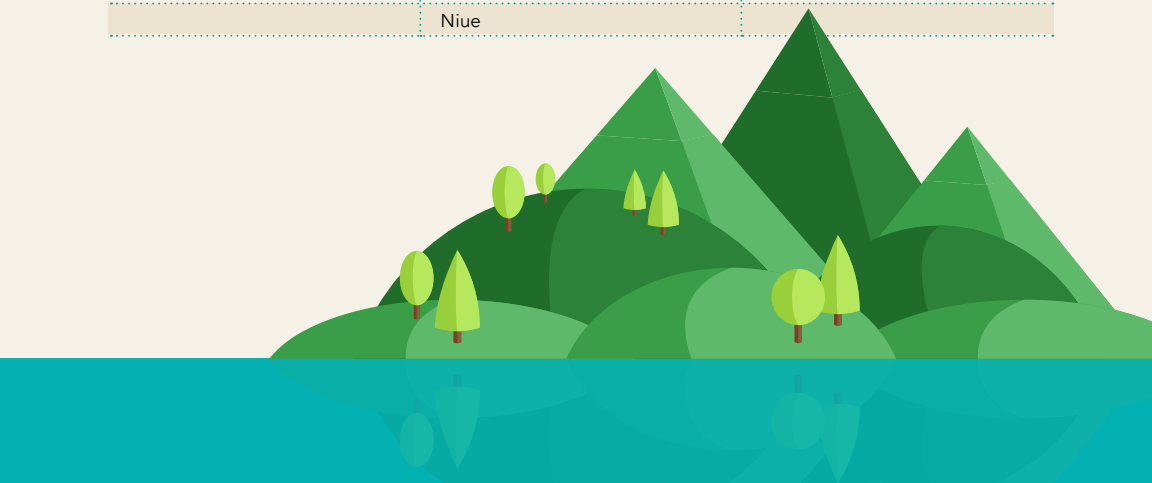
SMALL ISLAND DEVELOPING STATES

38 UN Member SIDS

CARIBBEAN	PACIFIC	AFRICAN, INDIAN OCEAN, MEDITERRANEAN AND SOUTH CHINA SEAS
Antigua & Barbuda	Federated States of Micronesia	Bahrain
Bahamas	Fiji	Cape Verde
Barbados	Kiribati	Comoros
Belize	Marshall Islands	Guinea-Bissau
Cuba	Nauru	Maldives
Dominica	Palau	Mauritius
Dominican Republic	Papua New Guinea	Sao Tome and Principe
Grenada	Samoa	Seychelles
Guyana	Solomon Islands	Singapore
Haiti	Timor-Leste	
Jamaica	Tonga	
St Kitts and Nevis	Tuvalu	
St Lucia	Vanuatu	
St Vincent and the Grenadines		
Suriname		
Trinidad and Tobago		

14 Non-UN Member SIDS

CARIBBEAN	PACIFIC	AFRICAN, INDIAN OCEAN, MEDITERRANEAN AND SOUTH CHINA SEAS
Anguilla	American Samoa	
Aruba	Commonwealth of Northern	
British Virgin Islands	Marianas	
Montserrat	Cook Islands	
Netherland Antilles	French Polynesia	
Puerto Rico	Guam	
US Virgin Islands	New Caledonia	
	Niue	



CARIBBEAN SIDS

There are 23 Caribbean SIDS, from the Bahamas in the north to Guyana and Suriname in the south (though not islands but part of the South American mainland, they are considered part of the Caribbean chain and certainly share many problems faced by the islands).

In large part, these countries are small in size and under-resourced in many ways. The sea is a significant part of our economies whether through the fishing and related industries or tourism. At the best of times, we have been dependent on the sea as much as we are at its mercy.

In hurricane season, boats, houses, roads, livelihoods and, indeed lives, can be lost from one moment to the next.

Climate change, bringing with it rising sea levels and erratic weather incidents, will do us no favours.

NASA measurements show that the global mean sea level is rising 3.2 millimetres a year. As the trend continues, coastal cities must spend more on defenses or more time underwater.

Most Caribbean SIDS lack the sort of robust infrastructure that helps countries recover from extreme natural disasters. It can take months or even years to reinstitute compromised or entirely destroyed systems for the distribution of water, electricity and telephone services. Even with the support of volunteers and the military, rescue and emergency units—hospitals and ambulances, fire brigades and shelters—often fall woefully short.

Accumulating scientific evidence shows that climate change is creating more frequent and powerful storms. The basic hypothesis is that warmer seas are feeding storm strength, and the Caribbean Sea has warmed by approximately 1.5 °C over the last century (UNFCCC 2007).

One of the challenges faced by T&T and many other SIDS is a lack of relevant and accurate data. Technical, financial and institutional capacity are often limited making it difficult to present clear, factual information.

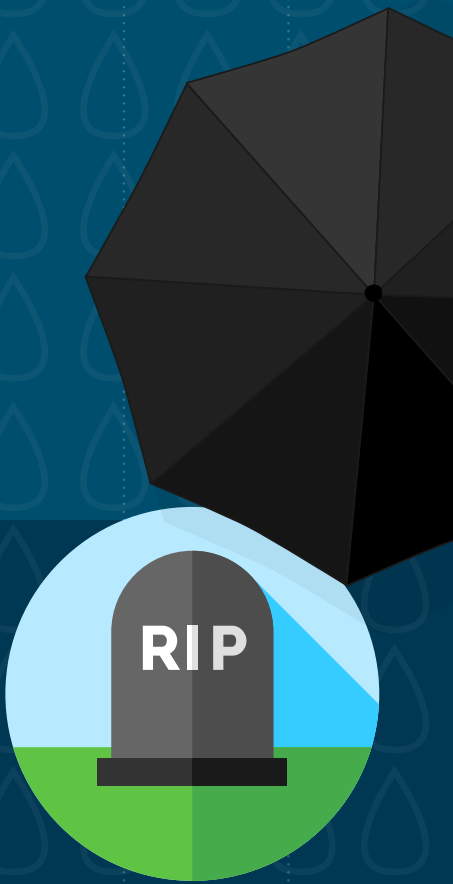
SOME RECENT DESTRUCTIVE CARIBBEAN STORMS:

1

In 2017, when Hurricane Irma raged through the Caribbean islands and southern parts of the United States, there were no words dramatic enough to give you an idea of the destruction. But Irma was more than its magnitude—it was long. This category 5 hurricane lasted from 30 August to 13 September, maintaining 185 mph winds for 37 hours. It is estimated to have killed 134 people.

Also in 2017, Hurricane Maria took more than 3,000 lives and levelled much of Dominica (including 9,960 landslides) and Puerto Rico. According to Dominica's Prime Minister Roosevelt Skerrit:

The devastation is beyond imagination. The stars have fallen. Eden is broken. We are shouldering the consequences of the actions of others. There is little time left for action. While the big countries talk, the small island nations suffer. We need action and we need it now.



YOUR GOVERNMENT'S COMMITMENT

In 2015 at the UNFCCC global climate change conference in Paris, the government of Trinidad and Tobago committed to a *conditional* reduction of 15% of greenhouse gas (GHG) emissions by 2030. In the public transportation sector, T&T has committed to an *unconditional* emission reduction of 30% by 2030.

The Caribbean SIDS are working towards reasonable goals and in Trinidad and Tobago we're hopeful about the start we've made. A month after the climate change conference, the UNDP and the Low Emission Capacity Development Programme began the process of hiring a roster of experts for the national measurement, reporting and verification system (MRV) being implemented. This system will allow us to monitor progress towards our targets.

And speaking of targets, you'll be hearing a lot about NAMA in the years to come. The acronym stands for Nationally Appropriate Mitigation Action, the policies and actions countries take to reduce their greenhouse gas emissions. The term acknowledges that states have different responsibilities and capabilities, based on their levels of development and how much they've contributed to climate change.

NOW. IN TRINIDAD AND TOBAGO

In the Budget Address for 2015 to 2016 T&T has set a target of 10% of energy to be generated by renewable energy systems by 2021.

Our 15% emissions reduction commitment (more formally referred to as our NDC or Nationally Determined Contribution) is nothing to sneeze at. It has been calculated by the government of T&T as a reduction of 103 million tonnes of CO_2 equivalent.

IF this reduction can be achieved, it would be a phenomenal achievement for the country and a step in the right direction.

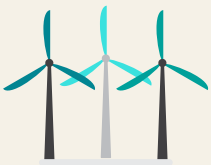
Achieving our target would be the same as:

- Eliminating the GHG emissions from approximately 22 million passenger vehicles driven for a year on average.

OR

- The carbon sequestered by 121.2 million acres of U.S. forest in one year.

The government of Trinidad & Tobago is currently examining proposals for the addition of 130 MW of renewable capacity to the national grid.



NATIONALLY DETERMINED CONTRIBUTIONS

(NDCs) OF SOME CARIBBEAN COUNTRIES MADE IN PARIS IN 2015

TRINIDAD & TOBAGO

Conditional reduction of GHG emissions by 15% by 2030 compared to BAU in three sectors: Power Generation, Industry and Transportation. *Unconditional* reduction of 30% by 2030 of GHG emission levels in Public Transportation **alone**. We have not committed to any emission reduction in two other reporting categories: AFOLU- Agriculture, Forestry and Other Land Use, as well as Waste.

ST KITTS & NEVIS

22% emission reduction target of GHG by 2025 compared to BAU; 35% emission reduction target of GHG by 2030 compared to BAU.

JAMAICA

Renewable energy up to 20% of its primary energy mix by 2030; reduction in GHG emissions of 7.8% versus BAU; reduction of 10% of GHG emissions versus BAU if given international support.

GUYANA

Avoidance of deforestation, reduction of mining and logging activities; further use of renewable energy.

Given timely financial support, 100% renewable power by 2025.

ST VINCENT & THE GRENADINES

Reduction in GHG emissions of 22% compared to BAU by the year 2025.

CUBA

Renewable energy strategy for 2030 inclusive of 13 wind farms and 74 small hydroelectric plants.

ST LUCIA

Conditional target of 16% reduction of GHG emissions by 2025.

50% renewable energy target by 2030; a mix of geothermal, wind and solar.

BAHAMAS

Reduction in emissions by 2030 of 30% compared to BAU scenario levels; renewable energy up to 30% by 2030.

ANTIGUA & BARBUDA

Unconditional: by 2020 update building codes to meet project impacts of climate change.

Conditional: Achieve an energy matrix with 50 MW of electricity from renewable sources by 2030.

GRENADA

Compared to 2010 figures, 30% reduction in emissions by 2025 and indicative reduction of 40% of GHG emissions by 2020.

BARBADOS

Reduction of GHG emissions of 23% compared to baseline year 2008 by 2030.

DOMINICA

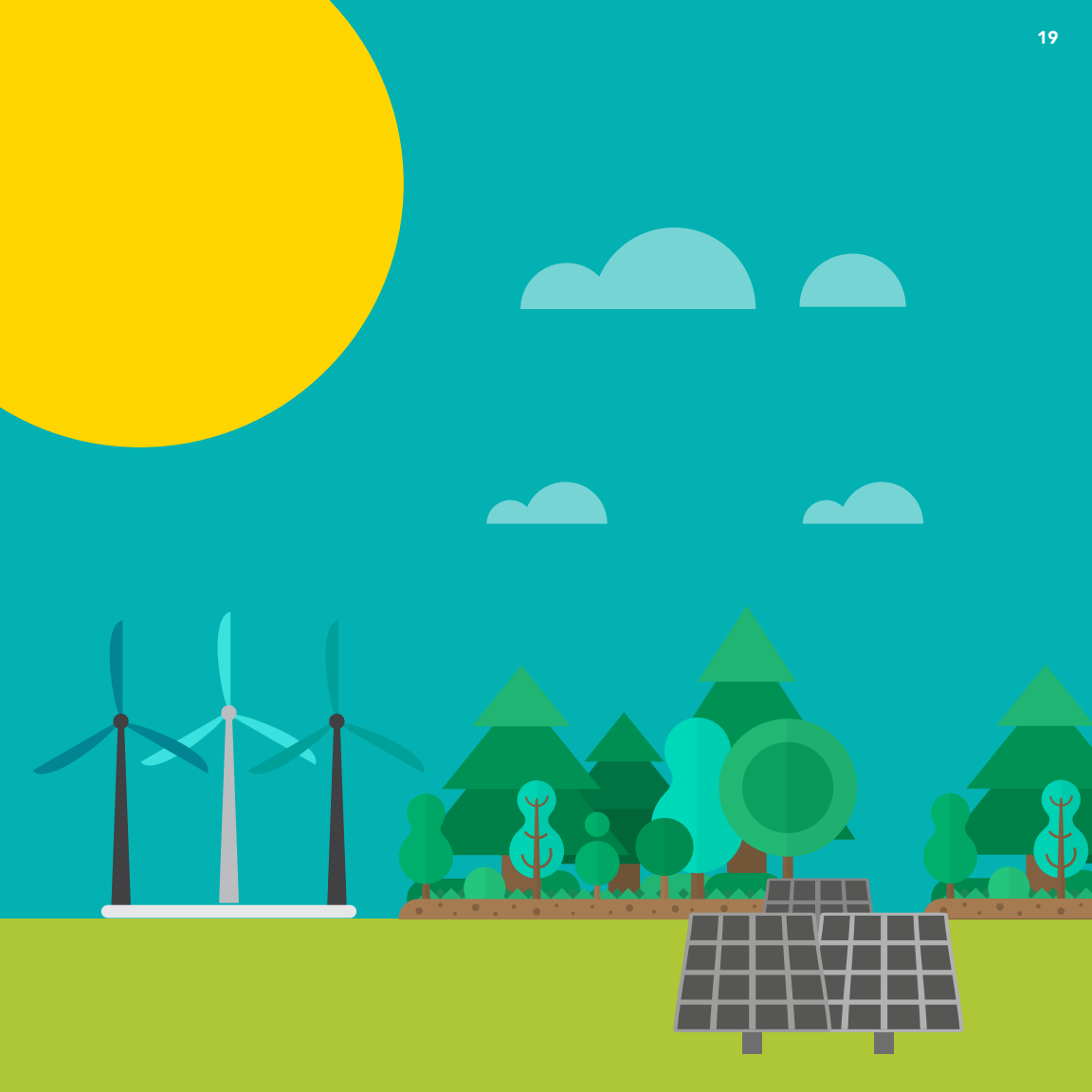
Commitment to progressively reduce GHG emission levels below their 2014 levels by 17.9% by 2020; 39.2% by 2025; and 44.7% by 2030.

HAITI

Unconditional reduction of GHG emissions of 5% compared to BAU. Conditional reduction of 26% of GHG emissions compared to BAU bases on the level of international financing and support received.

DOMINICAN REPUBLIC

Reduction of GHG emissions by 25% compared to their 2010 baseline levels. This commitment is conditional based on international support.



WHAT'S THE DIRT ON THIS?

Here comes a contradiction: Our energy is relatively cheap, which means we don't conserve as well as we would if it wasn't heavily subsidized, but it also comes from a relatively clean fuel—natural gas. So you are dirty, but not nearly as dirty as the Detroit resident whose electricity is generated by coal and whose heat comes from heating oil (chemically, very similar to diesel). We're talking here about the size of your carbon footprint—the amount of greenhouse gas emitted in the production of the goods and services that you consume.

In 2017, The Economist ranked Trinidad &Tobago as the #1 Most Energy Inefficient country in the world.

But when the output of all industry in T&T, from oil and gas production to downstream activities, is taken into account and divided by T&T's population, you, citizen of this country, can claim the unfortunate record of being one of the world's highest emitters of CO_2 equivalent per capita. That's because the emissions output of the country's energy sector, and our nations high energy inefficiency (encouraged by our highly subsidized energy cost) is added to your tab.

According to the World Bank, you emit 34.16 tonnes of CO_2 per annum.

Let's just say that we could be cleaner. Let's look at three possible ways to do this:

1. Convince the state to make important energy efficiency upgrades to their power plants, to support Energy Savings Companies (also known as ESCOs) and to use more renewable energy on the national grid.

2. Incorporate more mitigation techniques in the waste, energy, agriculture, industrial processes and forest sectors.

3. Explore and implement energy savings opportunities to reduce your own carbon footprint (and save cost!) at home and on the road.

AT HOME

8 TONNES

CO_2

PER YEAR

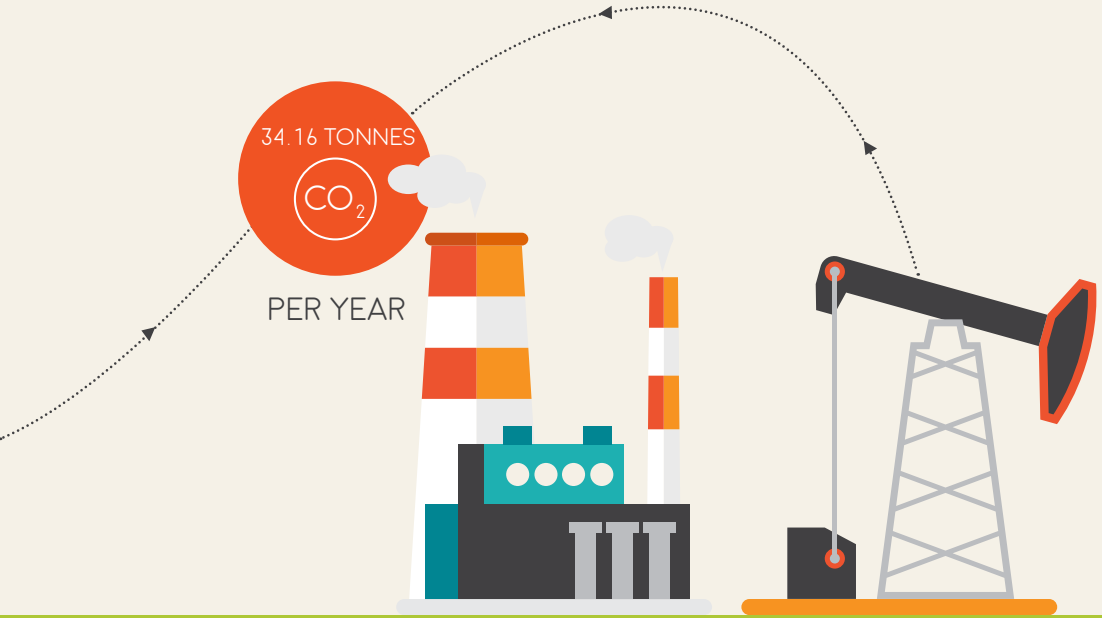
IN A BASIC HOME

From the average two-bedroom house in T&T we're emitting something in the vicinity of eight tonnes of carbon dioxide a year just by having a roof, a fridge and washer-dryers.

If you have a bigger house—one with more than one TV, more (lots more) electric light fixtures and something significantly more powerful than a 5,150 BTU AC unit—your emissions are quite a bit higher. But for ease of calculation, we're assigning you a figure of eight tonnes of CO_2.

Hang on, didn't we say the World Bank estimates that in Trinidad and Tobago each of us emits 34.16 tonnes of carbon dioxide a year? That is true, but remember, not all the emissions you are credited with come from your personal consumption of electricity.

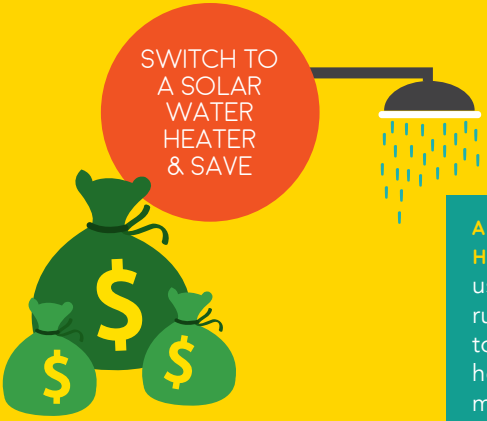
The rest of the emissions credited to you come from travel and greenhouse gases generated in the production of the food you eat. (That channa you had for lunch was fertilized, processed, packaged and transported. Fossil fuels were used every step of the way.) You also share responsibility for national greenhouse gas emissions. So all the power used by the energy companies and the downstream producers is divided by 1.37 million people and a fraction assigned to you as part of your total carbon footprint.



HEAT IN D PLACE

On almost every rooftop in Barbados, you'll see a smallish aluminum tank connected to a solar collector that converts the sun's radiation into heat. It's a solar water heater, hardly to be found in T&T where electricity is relatively cheap.

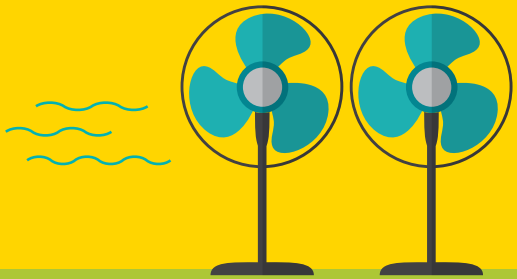
Switching your own hot water system to solar would reduce your CO_2 output by over a tonne a year. That's the equivalent of driving a diesel bus from Port of Spain to San Fernando, and back, 90 times. Think what it would mean if you could convince your neighbours to switch too.



A FUN FACT ABOUT SOLAR WATER HEATERS is that some models still use a small amount of electricity to run the pump that delivers water to your tap. But your electric water heater still consumes 6 ½ times as much electricity as a solar one.

A FAN OF FANS?

Your 5150 BTU air condition unit is an energy maniac. If you were to replace it with two standing fans, you'd still save over half a ton of CO_2 equivalent each year. That's almost the same as charging 80,000 smartphones or recycling 27 bags of trash instead of sending them to a landfill.



WHAT DO I CARE?

Good question. We had much the same thought, so we asked a few people. Close to 200 people, selected at random—some we met on the street, some we just called: maybe you were among them. Anyway, we asked those 190-odd citizens a few questions, to see what they cared about all this climate change stuff.

FIRST QUESTION

Are you aware of some of the negative effects that climate change poses to members of the Small Island Developing States eg. Trinidad and Tobago?

83% said yes, they were aware of these things.

OK, randomly selected sample of fellow citizens, you know a little something about climate change. But does it bother you?

83%

NEXT QUESTION

Do the effects of climate change concern you?

92%

92% said they were concerned—which is more than said they were aware of any specific negative effects.

Huh. If a lot of people are worried about something, but not all of them know exactly how that worrying thing applies to them—it suggests there might be something lacking in the information everyone is getting. That difference between the concern about a general issue and awareness of specific, local issues made us wonder if there was enough information about climate change in THIS country getting out to us.

NEXT QUESTION

Do you believe that the Government of Trinidad and Tobago has provided you with enough information on the topic of climate change to understand its causes, threats and how we can mitigate its effects?

91% said no.

91%

We probably should have stopped right there. You're telling us there is a thing you are aware of, it bothers you, and you're not getting enough information from official sources: time to help with that. But we thought we'd ask a couple more questions.

NEXT QUESTION

Do you believe that it is your responsibility as a member of the global population to help in mitigating climate change?

88%

88% said yes.

It is one thing to be worried about something, it is another to believe you have a responsibility to do something about it. Are you saying you'd be willing to do something about it?

NEXT QUESTION

Would you be willing to engage in energy efficiency exercises to reduce your carbon footprint?

80%

80% said yes.

Four out of five of the near-200 people we spoke to have the awareness, the concern, and the sense of responsibility to want to do something about climate change.

And nine out of 10 of those same people don't feel like they're getting enough information.

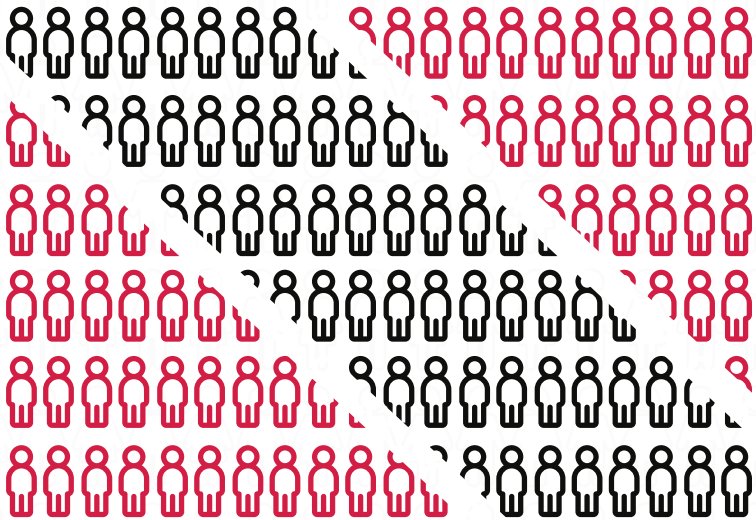
There are plenty more people in Trinidad and Tobago than the ones we spoke to. But when you start to get the same answer to the same question over and over again, you start to think you might be better off doing something more productive than asking that question.

That is why this booklet exists. Because we think there is a large number of citizens of Trinidad and Tobago who are concerned about this issue, wish they knew more about it, and wish they knew what it was they could do to help.

Can you do anything to help? Climate change is a big issue brought about by the collective activities of millions upon millions of people. In some ways, it can be described as the near-inevitable consequence of the simple fact that there are millions upon millions of people in the world. Isn't this something we have to leave up to government and industry to resolve?

Yes. And also no. You can make a difference. If 80% of us are willing to do something about climate change and we all do the same thing and it is a positive thing to do—that will have a more immediate and lasting effect than the policy documents being drafted now for implementation two or three years hence.

That is the point of view of this series of booklets: you know, you want to know more, you want do something. And we still have room for suggestions about what it is you might do: something you could start as soon as you stop reading this.



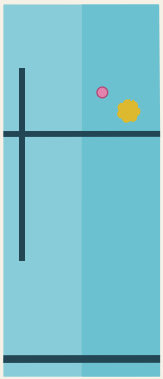
The government most often takes action to make changes based on what the people say they want. So speak up, share your thoughts with your friends, your neighbous, anyone who will listen. Your voice and thoughts do matter.

LET' S GET STARTED

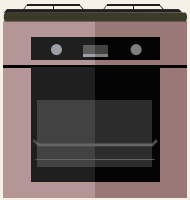
BREAKDOWN OF BI-MONTHLY ENERGY USE (kWh) IN OUR HOUSEHOLDS

Here are some items that show some of the more commonly used appliances and fixtures found across a range of socio-economic homes.

FRIDGE
(AUTO DEFROST)
297.60 kWh



RANGE
(OVEN)
105 kWh



It's NOT ok to start the dryer for one blouse.

Air dry as many pieces as possible.

WASHING MACHINE & DRYER
94.20 kWh

MICROWAVE
11.25 kWh

Unplug all appliances when not in use.

BLENDER

2.25 kWh

AIR CONDITIONER (5150 BTU)

254.40 kWh

FANS (2)

110.40 kWh for both

TV

122.10 kWh

LAPTOP

3.75 kWh

Switch off completely at the end of the day. Don't just let it go to sleep.

CEILING FIXTURE (3 BULBS)

46.80 kWh

If a room is not in use, turn off the lights.

60 WATT BULBS (10)

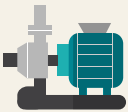
156 kWh for all

WATER HEATER

540 kWh

WATER PUMP

42.24 kWh



TOTAL 1785.99 kWh

(The above figures were taken from documents found on the T&TEC website.)

CONCLUSION

YOU CAN MAKE A DIFFENENCE

INFORM YOURSELF

TRY SOME OF THE THINGS ON OUR LIST

DON' T JUST LISTEN TO US.THINK OF THINGS THAT ARE RELEVANT TO YOUR LIFESTYLE

In this book we've tried to give you an idea of who we are as small countries in the Caribbean. There are particular vulnerabilities we share with each other—and some that we share with many other places in the world.

Being energy-efficient, recycling, and thinking of ways to reduce our carbon footprints are all ideas we're familiar with. But what are some ideas that are specifically relevant to us? What facts do we need to make better decisions, and what solutions work best for who we are?

By sharing the information we have—and by highlighting the things we don't know enough about—we hope you'll be encouraged to ask questions of your own and join us in finding ways we can cope with the challenges and risks.

SUGGESTIONS FOR MORE INFORMATION

(1) Caribbean Community Climate Change Centre- www.caribbeanclimate.bz – Repository for climate change information as well as information on the region's response to managing and adapting to climate change.

(2) Center for Climate and Energy Solutions- www.c2es.org/science-impacts/basics/kids - Kids corner to help with the understanding of climate change information in an age appropriate format.

(3) Climate Outreach- www.climateoutreach.org – Website dedicated to communicating information on climate change that is inclusive and people focused.

(4) Glacier Change- www.glacierchange.org – Website highlighting the deterioration and changing landscape of glaciers.

(5) IPCC (Intergovernmental Panel on Climate Change)- www.ipcc.ch – The IPCC is

described as the scientific body under the United Nations. This website contains reviews and assessments of the technical and scientific information relevant to climate change.

(6) NASA Global Climate Change- www.climate.nasa.gov – Important blog describing the varying issues of climate change accompanied by suggestions on how to mitigate and adapt.

(7) Real Climate- www.realclimate.org – Website that provides news and information from climate scientists.

(8) United Nations Framework Convention on Climate Change (UNFCCC)- www.unfccc.int – Up to date news on climate change negotiations as well as the status of the Paris Agreement.

(9) World Bank Climate Change – www.worldbank.org/en/topic/climatechange - Highlights the dangers of global warming and includes tips for how to further mitigate its effects.

GLOSSARY

(a) Adaptation: refers to dealing with the impacts of climate change by preparing and adjusting to the changing environment and moderating its harmful effects and exploiting its beneficial opportunities.

(b) Business as Usual (BAU): refers to a baseline scenario of GHG emissions that continues with current practices.

(c) Carbon Footprint: the total amount of greenhouse gases caused by an individual or group, due either directly or indirectly to their activities and expressed in tonnes of carbon dioxide equivalent.

(d) CO_2 (carbon dioxide): a naturally occurring gas present in the atmosphere that is also a by-product of anthropogenic activities. Carbon dioxide is considered as the principal anthropogenic greenhouse gas that affects the earth's radiative balance.

(e) CO_2 eq (carbon dioxide equivalent): the metric measure that compares the various GHG

emissions based on their global warming potentials.

(f) Greenhouse Gas (GHG): a gas present in the atmosphere that contributes to the greenhouse effect by absorbing infrared radiation. For example, carbon dioxide, methane and nitrous oxide.

(g) Intended Nationally Determined Contributions (iNDC): refers to the proposed reductions in GHG emissions by member countries of the UNFCCC before the 2015 UN Climate Change Conference in Paris.

(h) Mitigation: a reduction of the human impact on the climate system by either reducing greenhouse gases or enhancing their sinks. (IPCC 4th Assessment Report)

(i) Measurement, Reporting and Verification (MRV): a term used to describe the activities related to emission data collection, mitigation actions and the compilation of inventory reports. (mitigationpartnership.net)

(j) Nationally Appropriate Mitigation Action (NAMA): actions and policies undertaken by a country based on their circumstances to help reduce its GHG emissions.

(k) Small Island Developing States (SIDS): a group of developing countries that face similar challenges in relation to sustainable development and economic & environmental vulnerabilities.