



Ministry of Health,
Environment &
Sustainability
Cayman Islands Government

My Resilient Home & Property Guide

Prepare and protect your home, property and
loved ones from climate risks





A Pressing Issue for the Cayman Islands

Our climate is changing fast, and this is threatening the survival and wellbeing of people and nature around the world. Governments and organisations worldwide are responding by putting in place measures to limit further warming and reduce the devastating costs that extreme weather leaves in its wake. Individuals are responding too, by getting informed, changing their lifestyles, and preparing their families for the changes that are underway.

In the Cayman Islands, we are facing extreme events more frequently in the form of heavy rainfall and heat waves, as well as stronger tropical storms and hurricanes. Such weather conditions over the short and long term have implications for public health, water resources, commercial and backyard farming, and many other economic sectors and daily activities.



Our Vulnerabilities

The Cayman Islands is particularly vulnerable to the impacts of climate change because they are, on average, 7 feet above sea level, in the Caribbean hurricane belt, and generally contending with a drier climate. We are highly dependent on imported supplies of food, fuel, building materials and consumer goods. While we contribute very little to the cause of climate change (too much greenhouse gases in the atmosphere), we can lower our vulnerability and be prepared for whatever comes our way (by adapting). Many of the solutions that help us adapt to these emerging conditions also lower (or mitigate) the Islands' greenhouse gas emissions.

This guide will help you do both for your home and property by suggesting a suite of practical tips to deal with the effects of heatwaves, drought and water stress, as well as flooding and storms.

The Impacts

Extreme weather events associated with climate change have far reaching impacts, and will continue to touch every aspect of our lives. They can affect property values and even make some areas uninhabitable due to issues like chronic flooding, which already occurs along our coastlines and in some inland areas. Such events impact our homes and businesses, making it costlier to live and work in these areas.

Without measures to tackle the constant rise in sea-level, activities we take for granted today, like flushing our toilets, could become problematic for an increasing population. In addition to severe rainfall and storm events that affect crop yields and disrupt supply chains, drought conditions can threaten the agricultural sector locally and abroad, jeopardising household and national food security. Extreme weather events and conditions can cause injury and worsen existing health conditions, like asthma.



Climatic Changes & Their Impacts



Air & Sea Temperatures

Change: Warming trends continue: warmer days and warmer nights leading to decrease in daily temperature range, more heat extremes, above average sea surface temperatures

Impacts: Increasing heat stress on humans, livestock, crops and natural systems causing human health concerns, agricultural losses, coral bleaching and death, ocean acidification



Rainfall

Change: Fewer but more intense rainfall events are anticipated, with overall drier conditions expected over time

Impacts: Drought conditions, flooding events, damage to septic systems, agricultural losses, disruption of sporting and outdoor events



Storms & Hurricanes

Change: Increase in storm intensity and number of major (category 3, 4 & 5) hurricanes

Impacts: Coastal erosion; damage to natural buffers, tourism infrastructure, attractions, and inland property, increased rebuilding and insurance costs, delayed tourism reopening



Storm Surge

Change: Higher storm surge from stronger winds pushing waves toward the coast is expected and will be worsened by sea level rise

Impacts: Risk to lives and property from greater coastal and inland flooding



Wind

Change: Changes in typical wind directions, stronger storms have faster wind speeds

Impacts: Greater losses and damages to infrastructure and crops affecting food security



Sea-level Rise

Change: Sea level will continue to rise by over 1 foot by 2050 and could be over 3 feet by 2100

Impacts: Salinisation of groundwater affecting plant communities and drinking water for humans, livestock and wildlife; increased coastal erosion; inland and coastal flooding worsened



Things You Can Do Today

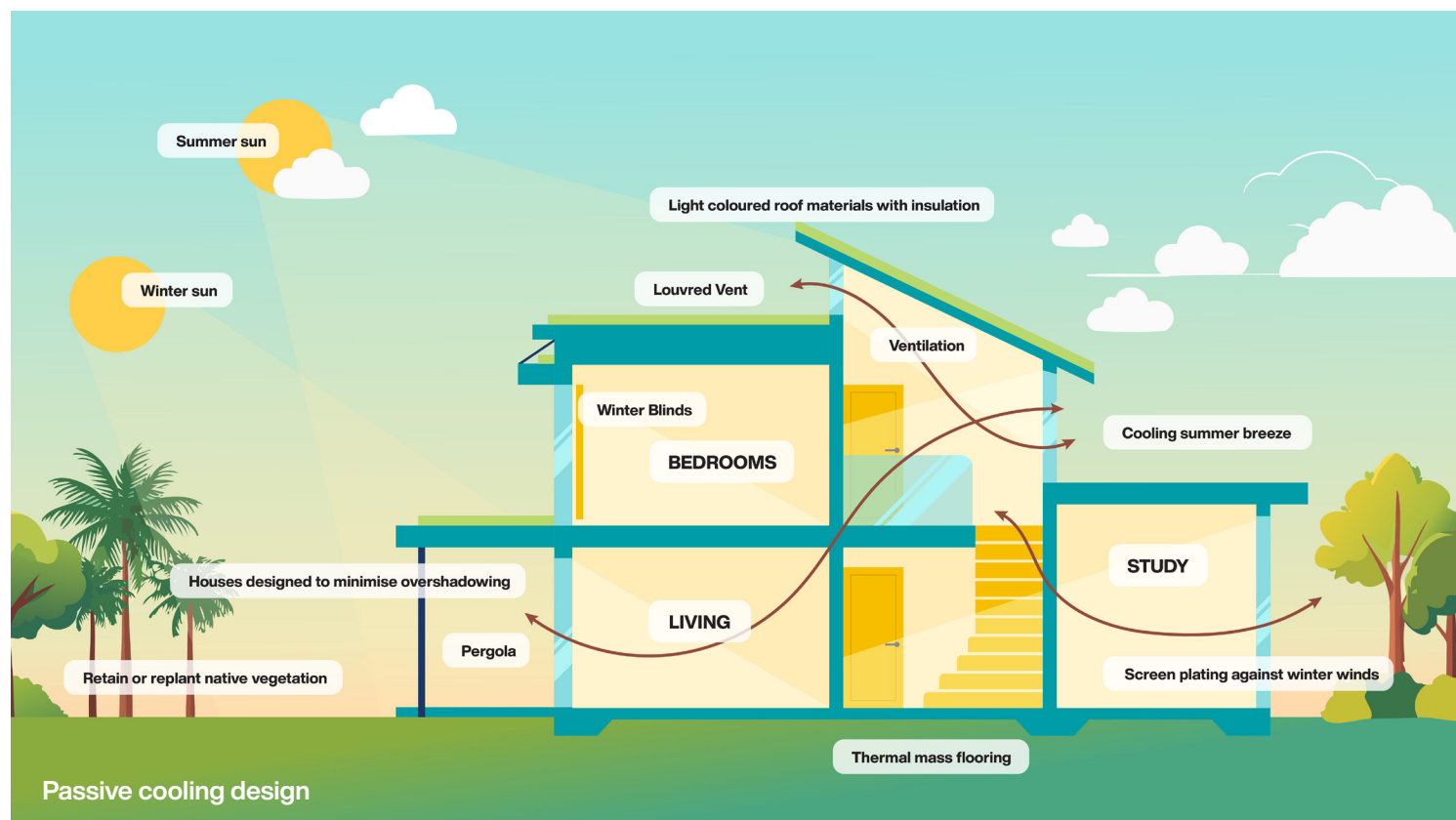
Hazard: Warmer Temperatures & Heat Waves

The average air temperature in the Cayman Islands has gone up over the last 40 years. We are experiencing periods of record-breaking temperatures and humidity during both days and nights. 'Feels like' temperatures are often in triple digits. Not only is this uncomfortable and drives your energy bill up, but it puts you at risk of health impacts such as dehydration, heat stroke, and even death.

The heat can also impact air quality in your home and on your property. Warmer air can hold more moisture, allowing for higher humidity. High humidity indoors allows mould to grow. Dust in the atmosphere, caused by dry outdoor conditions and from the Sahara Desert, can enter and get trapped in the home through open doors, windows, and ventilation systems. Poor air quality combined with rising heat and humidity can exacerbate respiratory illnesses such as asthma, especially in children. These issues can all have serious health consequences.

Here are some things you can do to reduce the impacts of warmer temperatures and heatwaves on your home environment:

- Know the signs of heat stress and heat stroke, and seek immediate treatment.
- Heed extreme heat warnings, especially asthma sufferers, and have adequate stock of inhalers and other medications during summer months and in preparedness for impending storms.
- Conduct an energy audit of your home to learn how to improve the indoor climate: Download a free energy audit for home or business here, <https://www.gov.ky/energy/resources/energy-audits>
- Reduce clutter and place dehumidifiers and/or fans in areas with low ventilation.
- Purchase an air purifier.
- Install double-paned windows for improved insulation.
- Put plants in your home. Plants with waxy or hairy leaves such as cacti or those that have large surface areas are the best to lower indoor humidity (e.g., spider plant, peace lily). Make sure they are pet friendly!
- For new builds, design your home for passive cooling by orienting windows towards the east/northeast prevailing winds for increased air flow and shading the western façade.
- Increase the home's energy efficiency by using energy efficient windows, lighting and other materials (e.g., spray foam).
- Ensure your home's outer shell (the walls, windows, roof, foundation) has no air leaks.
- Insulate your roof, attic, walls, and windows with the appropriate R-value or U-value. For details, visit <https://bit.ly/cucenergytips>
- Apply low-emissive film (tinting) to windows that receive direct sun and close your blinds or thermal curtains to keep out the heat.
- Ensure window screens are maintained to keep dust to a minimum.
- Use solar-reflective white paint on the outer surfaces of buildings, including roofs.
- Retain and/or plant native and endemic shade trees and vegetation around the property (but not too close to the property that they undermine foundations and walls).





Hazard: Drought & Water Stress

The Cayman Islands is experiencing a drying trend. This puts your farm, backyard garden or fruit trees at risk due to a shortage of water or need for irrigation. Drought and water stress can decrease yield or lead to total loss, which can increase the costs of doing business or supplementing your household needs.

Residents do not have to worry about potable (drinking) water shortages because the majority of the Cayman Islands is on piped water service. However, it is wise to conserve potable water (which is extremely energy-intensive to produce) and be prepared for disruptions that can occur as the result of storms.

Here are some tips to help you reduce the impacts of drought and water stress on the home environment:

- Water your plants early in the morning.
- Put down soil or marl around trees and other vegetation where water infiltration is needed. Avoid planting unsuitable varieties in low lying areas that may flood during heavy rain.
- Use drip irrigation which is more water efficient than sprinkler systems.
- Install a cistern or water tank as an alternate source of water to your house.
- Utilise water dripping from air conditioning units (condensate) to water plants.
- Use soil types that retain moisture: mix a 1-to-1 ratio of potting soil and peat moss for potted plants. Adding compost or manure also retains moisture.
- For gardening, use drought-resistant crop varieties. For examples visit: <https://bit.ly/DroughtCrops> AND <https://bit.ly/ucanr>
- Grow the thirstiest plants together and near your house where they will have access to rainwater run-off from your roof.
- Use native trees (listed in previous section), mid-sized shrubs, and drought-tolerant ground cover for landscaping to keep moisture in the soil. For example:
 - » Sea Lavender (*Tournefortia gnaphalodes*)
 - » Bay Candlewood/Seaside Oxeye (*Borrchia arborescens*)



- » Bay Vine (*Ipomoea pes-caprae*)
- » Cayman Agave/Century Plant (*Agave caymanensis*)
- » Button Sage (*Lantana involucrata*)
- » Frangipani (*Plumeria obtusa*)
- » Bahama Firebush (*Hamelia cuprea*)
- » Velvetleaf (*Melochia tomentosa*)
- » Bulrush/Coontie (*Zamia integrifolia*)



Sea Lavender (*Tournefortia gnaphalodes*)



Hazard: Storms

The Caribbean region is experiencing an increase in storm intensity and rapid intensification of systems into hurricanes. Warmer sea temperatures are fuelling stronger storms and intensifying hurricanes much more quickly than any other time in recorded history.

As sea temperatures continue to warm, the number of systems that turn into major hurricanes (category 3 or higher) is expected to increase, bringing heavier rainfall, and stronger winds, wave action and storm surge. These conditions increase the extent of coastal and inland flooding of low-lying areas. As sea level continues to rise, the risk of severe damage to homes, commercial buildings, critical infrastructure, and agriculture increases, directly and indirectly affecting our cost of living and quality of life. Storms can also put peoples' lives at risk.

Here are some things you can do to prepare for and reduce the impacts of storms on your home and family:

General

- Review or adjust your 'sum insured' regularly to ensure that you are insured for the full cost of rebuilding your home and replacing its contents. See Island Heritage for more information: <https://bit.ly/IslandHeritage>
- Develop a hurricane plan for your home and property, and know where the shelters are located. For more information, visit: <https://www.caymanprepared.gov.ky/hurricanes>
- Ensure you have a family plan, including to assist elderly or other vulnerable family members: <https://www.caymanprepared.gov.ky/resources/family-plan>
- Join your Community Emergency Response Team (CERT) to enhance your household and neighbourhood preparedness, response and recovery plans.



- Install gas appliances for cooking and refrigeration, or purchase a standby generator.
- Install solar panels and battery storage, at the very least, to run essential appliances.
- Consider building or moving further inland and on higher ground.
- Ensure rain barrels are not harbouring mosquito larvae and empty plant pots, containers and tyres of any standing water.



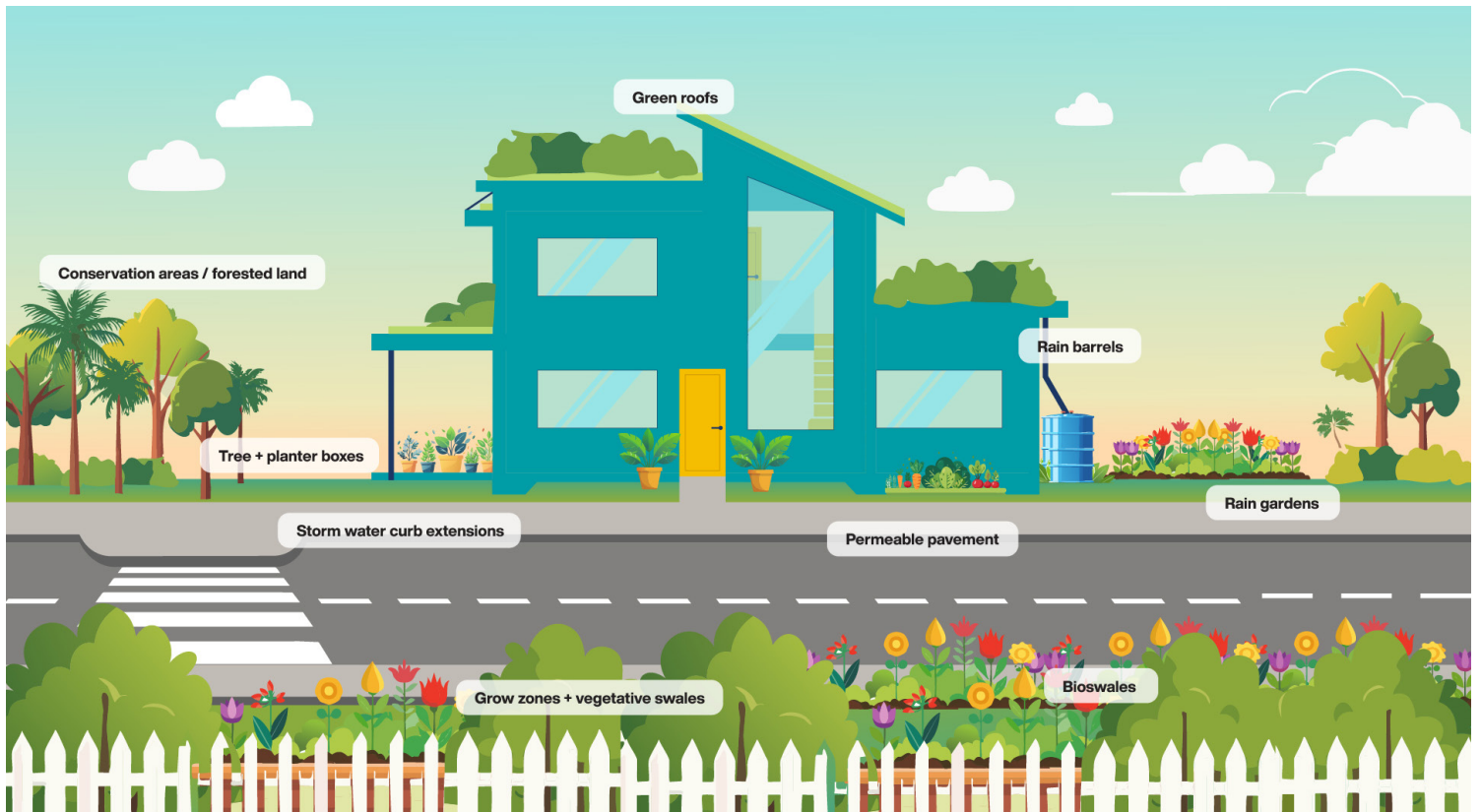
High Winds

- Clean up your yard and secure items that could become projectiles in your house, garage or shed.
- Trim your trees (especially coconuts) and cut back your crops at the start of hurricane season to avoid loss. Do not attempt to cut trees or branches that grow within 10 feet of power lines. Contact CUC for more information or <https://bit.ly/cuctreetrim>.
- Ensure that your roof structure is up to code (e.g. has sufficient hurricane straps/bracing, appropriate underlayment, etc.) by hiring an engineer or contacting the Department of Planning for more information: info@planning.gov.ky
- Install impact resistant windows and doors.
- Install hurricane shutters or be prepared to install plywood on windows for some protection to the damage that wind can cause. For more information: www.gov.ky/publication-detail/making-homes-safer



Flooding

- Request the Ivan Flood Map and elevation map of your existing or prospective property to understand your flood risk: <https://www.caymanlandinfo.ky/Services/NGIS/MapRequest>
- When designing your new home or renovating, consider elevating the finished floor level to at least seven feet (7ft) above mean sea level if adjacent to the sea or a canal; and at least five feet (5ft) above mean sea level if land is in any other location.
- Ensure that poultry have access to high areas to perch.
- Reduce or limit the area of hard structures on the property that allow water to accumulate.
- For neighbourhood scale developments, and those with a Strata, advocate for the introduction of nature-based solutions, which could include Sustainable Urban Drainage Systems (SUDS): www.susdrain.org/
- Instead of (or in addition to) the traditional deep well method of containing runoff on site, consider using vegetation and landscaping design to retain and absorb water, or connect roof downspouts to convey water to be held in cisterns. For more ideas, visit: <https://bit.ly/4atpxuv>
- Retain as much native vegetation on the property as possible. Native species that can grow in moist or wet soil include:
 - » Green Buttonwood (*Conocarpus erectus*)
 - » Silver Buttonwood (*Conocarpus erectus var sericeus*)
 - » Southern Cat-tail (*Typha domingensis*)
 - » Plopnut/Popnut (*Thespesia populnea*)
 - » Smokewood (*Erythroxylum confusum*)
 - » Galipee (*Dendropanax arboreus*)
 - » Wild Tobacco/Cure-for-all (*Pluchea odorata/ carolinense*)
 - » Sugarcane (*Saccharum officinarum*)
- Call the National Roads Authority about blocked drains in roads.
- Construct rain gardens to absorb and convey rainwater. For instructions, visit <https://bit.ly/4gc4Zro> AND <https://bit.ly/SanibelCleanWater>



Natural solutions for managing stormwater

- Have a water pump ready to use during hurricane season.
- Install flood gates at entrances; there are permanent and temporary options that can be purchased online.
- Have an adequate number of sandbags ready to place around the property.
- Before the wet weather season and after the first heavy rains, remove accumulated grit and debris from storm drains and place in the solid waste bin. Fit your storm drains with filter inserts for added protection.
- Regularly maintain and inspect your home's structure for any points where water can enter.
- Seal windows and doors with weather-stripping.
- Check for any damaged roofing materials that need to be replaced.
- Seal wall cracks and holes with a suitable sealant such as caulk, silicone or expanding foam.
- Check that the ground gradient slopes away from the walls and foundation.
- Convert excess pavement into green areas or containerised plantings to increase water infiltration.



Wild Tobacco/Cure-for-all (*Pluchea odorata/carolinense*)

- Install a sewage backflow prevention device. For more information, visit: https://bit.ly/WaterAuthority_sewage
- Install treatment plants and septic tanks above ground. This makes them less susceptible to flooding and storm water overflow issues.
- Ensure that the minimum invert level (the lowest point on the inside of the pipe where water first flows) in which your onsite wastewater system connects to the effluent disposal well is at a minimum of four feet four inches (4ft 4in) above mean sea level. This will stop systems from backing up and overflowing into your home.
- Pump out your wastewater system to 25% capacity so the tank is weighted. The tank could pop out of the ground if it is not properly anchored in the ground or is in the water table.



Some examples are:

- » White Fiddlewood (*Citharexylum spinosum*)
 - » Duppy Bush (*Phyllanthus angustifolius*)
 - » Sea Grape (*Coccoloba uvifera*)
 - » Snakewood (*Colubrina arborens*)
 - » Spanish Elm (*Cordia gerascanthus*)
 - » Bastard Ironwood (*Exostema caribaeum*)
 - » Bastard Cherry (*Ehretia tinifolia*)
 - » Whitewood (*Tabebuia heterophylla*)
 - » Cherry (*Myrcianthes fragrans*)
 - » Slingshot/Wild Jasmine (*Tabernaemontana laurifolia*)
 - » Yellow Sanders (*Zanthoxylum flavum*)
 - » Smokewood (*Erythroxylum areolatum*)
 - » Clam Cherry (*Cordia laevigata*)
 - » Fiddlewood (*Petitia domingensis*)
 - » Headache Bush (*Morisonia cynophallophora*)
 - » West Indian Nettle (*Trema lamarckiana*)
 - » Broadleaf (*Cordia sebestena* var. *caymanensis*)
 - » Balsam/Autograph tree (*Clusia rosea*)
- For those in apartments or complexes with a Strata, advocate to preserve or create areas of trees and other vegetation for shade and cooling that will benefit the community.
 - Install shade sails or pergolas to beat the heat.



Need Financial Assistance?

The cost of actioning the tips here range from free to thousands of dollars. It will be important for you to assess your home and property and determine what is within your means to address. Luckily, there are some options for financial assistance that you may be able to access.

Some banks offer “green loans” with various financing options, such as low or flexible interest rates, 100% financing, and deferral of payments. These loans are typically meant to help you improve your home’s energy efficiency through retrofitting or renovations and the purchase of more efficient appliances.

The types of home improvements that may be eligible for green loans may include things like:

- Shutters
- Solar panels
- Window/door replacement
- High efficiency water heater
- High efficiency central air conditioner (e.g. high SEER)
- Foam insulation in the attic or exterior walls
- Air sealing (e.g., weather stripping, caulking)



Ask your bank about home improvement loans.

Resources

For more information, check out the following resources:

- Cayman Islands Climate Change Risk Assessment 2022
<https://www.gov.ky/sustainability/climatechange/policy>
- A Guide to Climate Change in the Cayman Islands
<https://bit.ly/NationalTrustCCGuide>
- Cayman Climate Toolkit (teaching resources for teachers)
<https://www.nationaltrust.ky/>

Acknowledgments

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If you have any questions or suggestions for our next edition, please email us at **climate@gov.ky**.



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