According to this year's report by the UN Intergovernmental Panel on Climate Change (IPCC) we have only just about twelve years to save the Earth. Only twelve years to avoid losing the only planet which harbours life in our solar system to droughts, heat waves, rising sea levels and super strong hurricanes. When reports by the world's top scientists similar to this one bring such grim discoveries to our attention what seems to be everyday it is easy to lose hope. Small nations like Dominica and the rest of the Caribbean are forced into uncomfortable situations by this unfolding global catastrophe. Despite not contributing much to the destruction of the earth we still face the negative impacts and, after experiencing Hurricane Maria on September 18,2017, we had no choice but to join the discourse on how to properly deal with and adapt to these climatic changes. There is no time to debate on whether or not Global warming and climate change, an issue we feel the effects off in every part of the world, is real. In his remarks at the GLACIER conference in Alaska, the former president of the United States stated that "the point is that climate change is no longer some far-off problem. It is happening here. It is happening now. Climate change is already disrupting our agriculture and ecosystems, our water and food supplies, our energy, our infrastructure, human health, human safety -- now. Today. And climate change is a trend that affects all trends -- economic trends, security trends. Everything will be impacted. And it becomes more dramatic with each passing year."

To begin formulating a plan to tackle this issue, we must understand a few key terms. As defined by the IPCC, ***climate change*** refers to "a change in the state of the climate that can be identified by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer." and in this context ***resilience*** means the "capacity of social, economic, and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganizing in ways that maintain their

essential function, identity, and structure, while also maintaining the capacity for adaptation, learning, and transformation."

The major takeaway from these definitions is that there is no such thing as 100% resilience. There will always be a hurricane that catches us off guard or something that is simply just beyond our control. There is no definite action that we can take that will magically make us 'resilient'. We must acknowledge that it is impossible to completely adapt to something that is constantly changing. So, rather than viewing being resilient as either yes or no, a 1 or a 0, we must look at it as the spectrum it is. One in which we try to be out of the red and close to the green as possible. It is also important to note that, yet still, adapting should not be the first option. The first option would be to try to actively reduce harmful emissions and pollution but since small nations like Dominica do not contribute so much to this, we are forced to adapt to the consequences brought upon the world by superpowers with giant carbon footprints.

As a small nation we are nowhere close to reaching our potential climate resilient capacity. There is a lot of work to be done in every section of our society. We need to figure out where we are, where we want to be and how exactly we are going to achieve it. We should begin with thorough assessments of our current state and band together specialised skilled and knowledgeable individuals to improve upon what we have already and further our understanding of the topic of climate resilience. The next crucial step would be starting from the basics and spread understanding and information amongst all people regardless of age or social standing. Everyone needs to play a role to make themselves and their communities more resilient. Beyond assessing and educating, further steps can be taken to increase adaptive capacity. As small islands we must introduce and enforce strict building regulations to ensure minimal loss due to disaster and transform our agriculture to ensure food security

as well as broaden our means of economic development to quickly bounce back from disaster.

The first step Dominica and other islands can take towards becoming more resilient to the negative impacts of climate change includes a bit of self reflection. Assessments of hazards, exposure and vulnerability must be done as resilience depends on these three components. Hazard as in, an activity or phenomenon that may lead to death, injury, damage to property or economic, environmental or social damage. Exposure as in how much infrastructure, systems and other human assets are subject to loss or are found in hazard-prone areas and vulnerability, different from exposure refers to the environmental, economic, physical or social characteristics of a community or individual that makes it susceptible to damage when exposed to a hazard. We have already made progress in this regard to this through national discussion and documents by the Dominican government such as the Low-Carbon Climate-Resilient Development Strategy 2012-2020 and the Post Disaster Needs Assessment of 2017. The former deals with important areas such as agriculture and food Security, the private sector, human settlements, fisheries, disasters, human settlements, infrastructure among other things whilst the latter takes a look at where we were directly after last year's disaster and our reconstruction and recovery needs.

An effective way to ensure preparedness in the face of disaster is by putting together a team of responsible and capable individuals to address various hazards that their individual communities, countries and the region face. It is important to have team members from all over the country who are skilled in areas such as environmental science health, housing, economic development, emergency management, energy supply, volunteer and faith-based organizations and representatives of groups like the Kalinago people as they would have personal insight into hazards possibly overlooked on a national scale, represent the

perspective of as many people as possible and pool together their resources. This team can do further work to improve upon current knowledge of climate change and further identify hazards and the cascading effects on the country. After this identification is done they should move on to understanding their communities ability to manage the effects. The team should perform exercises where they role play possible scenarios. They must essentially try to predict and prepare for the unpredictable. Once they to the best of their abilities predict how climate change will continue to affect their countries a detailed climate resilient plan should be mapped out. This would include what must be done before, during and after disaster as well as how to generally cope with ever changing environments and erratic weather patterns. Everyone should know their exact role and have access to the resources they need to carry out their roles. Remember, as the climate continuously worsens we must continuously review and improve the plans to maintain peak effectiveness.

Next we can begin to educate the rest of the people and begin the change in small ways using the information gathered together by the governments and the team put in place. Before we embark on the journey toward national adaptability and resilience, we must first attempt to achieve household and community resiliency. In the Post Disaster Needs Assessment of 2017, by the government of Dominica it is said that approximately 2 800 people who were deemed vulnerable before Hurricane Maria now fall below the poverty line. For many of these people, physically building back what they lost will not be enough. The psychosocial aspect of building back is just as, if not more important, than the physical aspect. We need to mentally prepare ourselves on how to cope with such frightening realities and not break under the pressure.

In addition to the psychosocial, we need to educate people on the environmental aspect of building back. Through social programs in various communities we can encourage people to

lead lifestyles in closer alignment to resiliency. Everyone needs to be able to make educated decisions on how they affect their immediate natural surroundings as well as how they react to it. To lessen our small contribution to the destruction of the earth, we can implement recycling programs or zero waste policies to individual households, schools, communities and by extension the entire island.

We need to work from the ground up. Equipping children with the skills needed to deal with climate change and train them so that in the future they in turn will be able to contribute to this discussion and make positive changes within their communities. The government of Dominica has acknowledged that some opportunities for adaptability are not realized due to insufficient information on the topic and a lack of understanding and awareness. There needs to be an expansion of knowledge for not only school children but policymakers, building contractors, the media, disaster response personnel and all other areas of society. We certainly have a lot of educating to do if we want to become a more climate resilient nation. This educating can be done in the form of Public educational outreaches.

To add to this, whilst educating people will do a great deal to prevent loss in the event of natural disasters or a result of climate change, laws need to be implemented so that everyone remains safe. Many times, people grow attached to their homes and do not want to leave when danger is near. Mandatory evacuation in hazard-prone areas will immensely decrease vulnerability and loss of life. Due to our topography in Dominica, areas in almost every community can be considered hazardous. We cannot continue to allow people to build time and time again on riverbeds and below landslide prone cliffs.To limit our exposure and vulnerability, building codes must be put in place to ensure that no one builds permanent residence or other infrastructure in areas prone to flooding and landslides. Building codes are almost always mentioned in conversations about resiliency and we must take them into

consideration. Whenever someone builds, they should be required by law to follow set guidelines for buildings durable against weather and temperature. After Hurricane Maria it was estimated that more than 90% of buildings were damaged and about 60% of these were destroyed or badly damaged and 80% of the population directly affected. This damage was estimated at about EC$955 million (US$353 million) to the housing sector. According to “TOWARDS A MORE RESILIENT BUILT ENVIRONMENT: DOMINICA POST HURRICANE MARIA”, a slideshow included in the draft Organization of Eastern Caribbean states, OECS, Standards, a lot of this damage was a result of unsuitable building material for our climate, exposed rafter architecture, inadequate fastening and other preventable shortcomings. In this presentation, example of proper sheeting, timber membranes, screws, windows and doors,ventilation, drainage and hurricane ties and so much more is outlined in order to build back better. If you take a look at the Building Codes on the National Physical Planning Division, you will notice many sensible guidelines which are simply not being enforced. A much greater effort needs to be made to prevent the same level of destruction experienced during Hurricane Maria from ever happening again.

Another important way we can become more resilient is by improving our agriculture sector to ensure food security. As former president of New Zealand Helen Clark put it “Adopting and promoting sustainable production practices require concerted effort, something which in practice is too often missing or insufficient. Making this shift at the scale required demands forward-looking leadership in the public and private sectors alike.” The symptoms of climate change are such that if we do not change the food that we grow or the ways in which we grow them we will not survive. According to the Low-Carbon Climate-Resilient Development Strategy, “Dominica’s real agricultural sector product and agriculture’s share of Gross Domestic Product (GDP) has fallen consistently with each major natural disaster with the sector failing to recover to previous levels of relative importance.” This is extremely

concerning and something has to be done. To combat this issue we must try to move away from mono-culture and diversify our crops. We could also follow in the footsteps of Jamaica where in may of this year the Caribbean Development Bank (CDB) funded a three day workshop on using aquaponics to boost food security and climate resiliency. The CDB website stated that their initiative was to develop a programme in which the focus was to make aquaponics commercially viable for small and medium scale farmers. This is a step in the right direction. Additionally, one path to climate resilient food is through genetic modification. Through this, wider ranges of crop species can be created more resilient to drought, heat and moisture. For example, in Tanzania and Bangladesh climate friendly species of rice and maize have been introduced successfully.

Furthermore, technology like drip irrigation and sprinklers must be applied in areas prone to drought or to help save one of the most valuable resources, water. This will assist with temperature management, even distribution of water and reduce loss through evaporation. All over the world climate related calamities occur destroying livestock, crops and communities in an already starving world. If we cannot adapt our agricultural habits and practice sustainability , the some 750 million people who work as small farmers will lose their incomes, the poor will get poorer and staggeringly large figure of 795 million individuals suffering from undernourishment will only increase.

Many Caribbean islands such as Anguilla, the Bahamas and the British Virgin Islands heavily depend on their tourism industry. 30.3%, almost a third of the BVI economy relies on tourism. As stated on Worldatlas.com, in 2014 tourists brought $290 Million to the islands in revenue. More than half of these visitors being cruise ship passengers. In the unfortunate but likely event that something happens as a result of climate change and wipes out or greatly damages their main source of revenue it will severely impact the country's ability to

recover. We must never put all our eggs in one basket and should much as possible try to explore new economic avenues.

In conclusion, there are many actions, with varying levels of difficulties that we can take to increase our adaptive capacity. Nothing should be considered to simple and overlooked. One public outreach could be the difference between minor and mass destruction. We cannot let another disaster like Maria take us off guard. There is no other option but to try to change as speedily as the climate does. With teamwork and open discussions we can achieve greater resiliency. We need to study our current situation and through official teams built specifically for this purpose think up the best way forward. Then we may continue on through educating the masses on the issue so they can realize for themselves that there is work to be done. Once everyone is onboard, we must implement laws conducive to resiliency in regards to food security and building protocols and then work on becoming self sustainable and not too dependent on one source of income.

Resiliency is not just a buzzword. Jovenel Moïse, chairman of the Caricom Community (CARICOM) and president of Haiti insists that the Caribbean must move to become the first climate resilient region in the world. He said “The absolute necessity to create a climate-smart region is clear given the effects of climate change which have brought us droughts, mega hurricanes, heavy floods and unusual weather patterns, all of which adversely affect our development. The social and economic gains that we have made individually and collectively must be protected against the onslaught of nature. CARICOM Member States’, as well as the region’s non-member States’ production of greenhouse gases, is practically nil, even though they bear a disproportionate share of the consequences.”

We know that evolution favours the fittest and we must, we must do everything in our power to protect ourselves from climate change in addition to petitioning for the contributors to this phenomenon to reducing their carbon footprint.