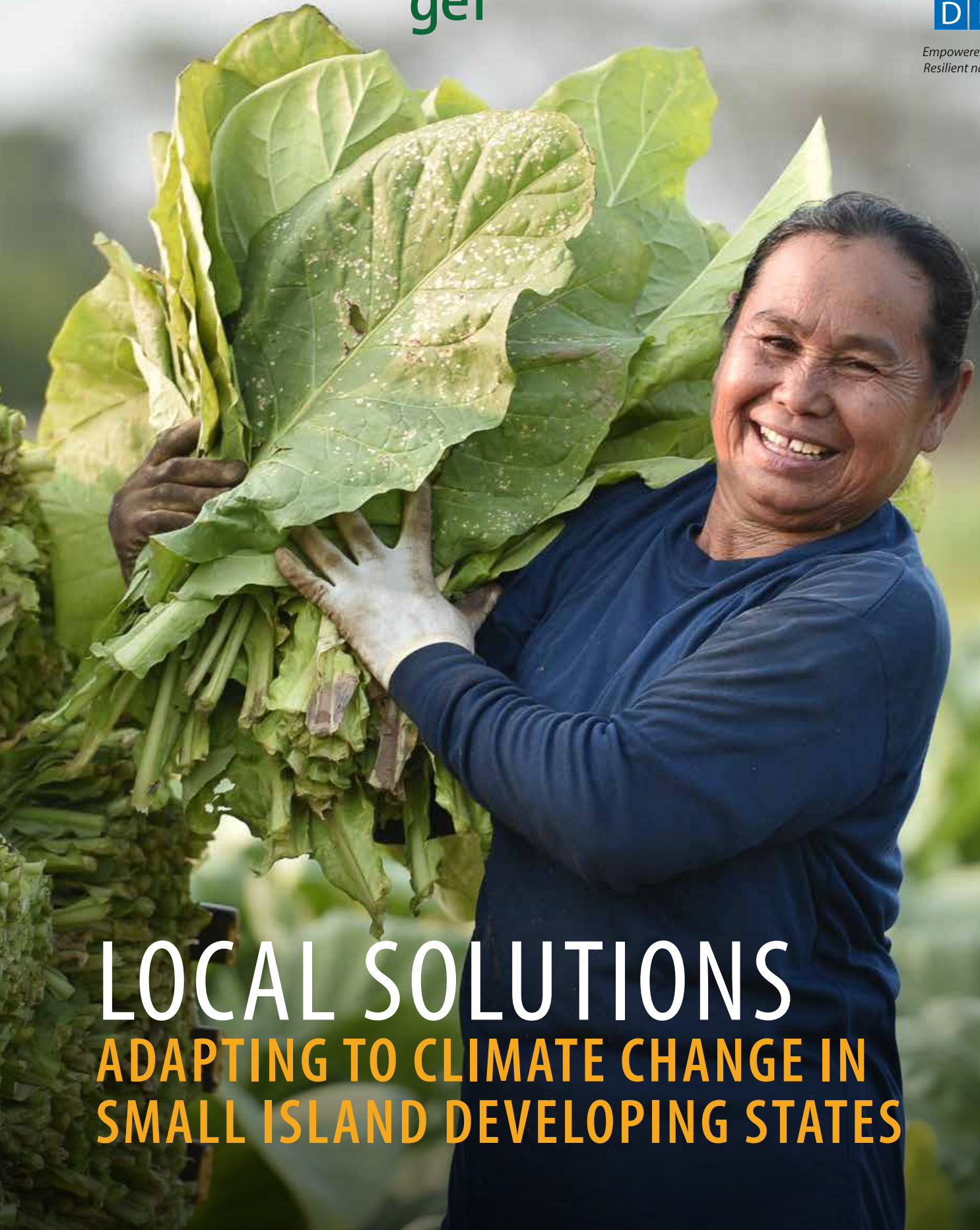




**SGP** The GEF  
Small Grants  
Programme



*Empowered lives.  
Resilient nations.*



# LOCAL SOLUTIONS

## ADAPTING TO CLIMATE CHANGE IN SMALL ISLAND DEVELOPING STATES

The Small Grants Programme (SGP) is a corporate programme of the Global Environment Facility (GEF) implemented by the United Nations Development Programme (UNDP) since 1992. SGP grantmaking in over 125 countries promotes community-based innovation, capacity development, and empowerment through sustainable development projects of local civil society organizations with special consideration for indigenous peoples, women, and youth. SGP has supported over 20,000 community-based projects in biodiversity conservation, climate change mitigation and adaptation, prevention of land degradation, protection of international waters, and reduction of the impact of chemicals, while generating sustainable livelihoods.



The Global Environment Facility (GEF), established on the eve of the 1992 Rio Earth Summit, is a catalyst for action on the environment — and much more. Through its strategic investments, the GEF works with partners to tackle the planet's biggest environmental issues. Our funding also helps reduce poverty, strengthen governance and achieve greater equality between women and men. As such, we occupy a unique space in the global partnership for a more sustainable planet.



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# Introduction

Climate change continues to be one of the greatest challenges facing our planet and humanity today, and local communities and small island developing states (SIDS) are at the front line of its impacts. Drought and rising temperatures, excessive precipitation and flooding, sea level rise and salt-water intrusion, coastal erosion, loss of agricultural crops, degradation of coral reefs due to bleaching, increased instances of pests and diseases, and unpredictable storms and weather events are just some of the challenges experienced by SIDS. These variations in climate not only affect the environment and resilience of natural ecosystems, but also have ripple effects on every sector of the economy and society including economic stability, agriculture and food security, water access and sanitation, health and well-being, education, tourism and livelihoods.

SIDS often experience acceleration or intensification of climate change impacts due to their small land areas, susceptibility to natural disasters, geographical isolation, limited natural resources and sensitive ecosystems. Many of these natural resources are often already facing other anthropogenic pressures such as overexploitation, over-harvesting, pollution, deforestation and degradation. In addition, many SIDS also struggle with fragile economies, emigration of active population, political instability, high import costs and heavy dependence on external aid. Many

countries do not have enough resources to combat climate change impacts on their own, and further degradation of natural resources and ecosystems will increase poverty, hunger and economic and social inequalities. Thus, climate change can significantly limit progress towards achieving sustainable development.

With these challenges in mind, in 2009 the GEF Small Grants Programme (SGP) entered into a partnership with the Australian Overseas Aid Programme, now assimilated within the Australian's Government Department of Foreign Affairs and Trade (DFAT). With funding from DFAT, the objective of the partnership is to improve the climate resilience of local communities in 42 countries, including 37 SIDS.

The goals of the programme are to:

- reduce the vulnerability and improve the adaptive capacity of local communities to the adverse impacts of climate change;
- provide countries with concrete ground level experience on local climate change adaptation; and
- provide clear policy lessons and mainstream community-based adaptation (CBA) within national processes, and scale up best practices.



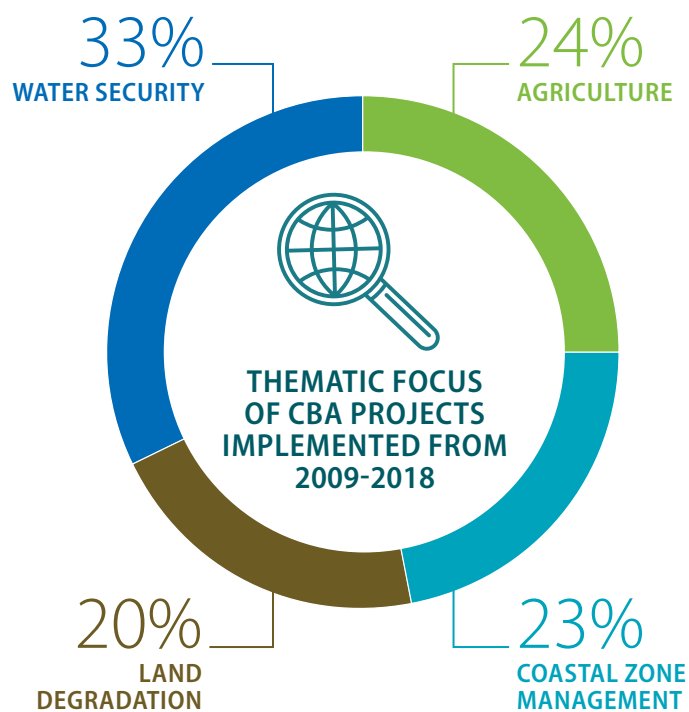
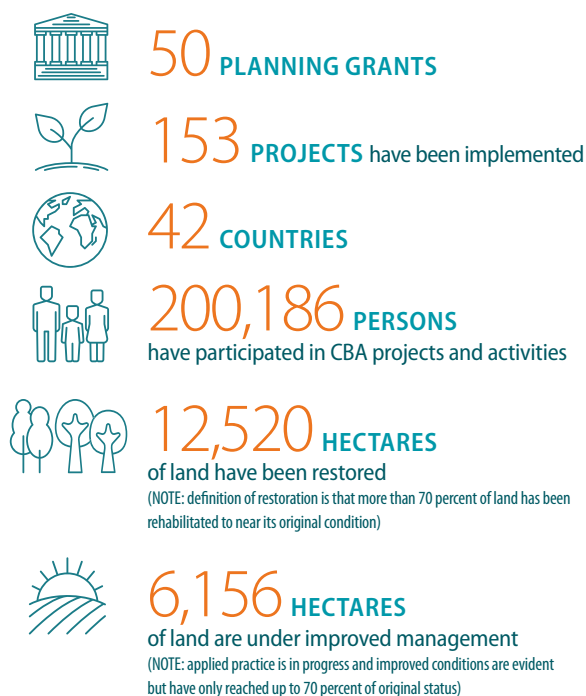
To realize these objectives, CBA projects invest in **capacity development and awareness-raising initiatives** aimed at strengthening local communities' resilience to climate change through sustainable **nature-based solutions that optimize environmental, economic and social outcomes**. The projects' integrated approach to land, water, forest and coastal resource management also contributes to environmental benefits in other multi-focal areas.

CBA's focus on **social inclusion** and cohesion ensures that all members of society have a voice, a role, and access to opportunities and services, irrespective of gender, age, ethnicity, or mental and physical abilities. This **participatory approach** throughout the project cycle allows capacity development in every component, including project proposal writing, development of action plans, financial management, and development of income-generating and/or alternative livelihoods. Through the vulnerability reduction assessment (VRA) process, communities can identify problems and measures, and design interventions that are specific to their community and **adapted to their local culture and traditions**. This results in an **engaged, empowered and mobilized community**. Indigenous and traditional knowledge is also combined with scientific practices to ensure that adaptation strategies are relevant and context-specific.

To **bridge the gap between local, national and regional actors**, various multi-level consultation meetings and dialogues are held throughout the project cycle. These engagements serve as a space for communities' voices to be heard, their needs to be understood, and their challenges to be recognized and addressed by various decision makers. In addition, these processes enable community views and actions to be mainstreamed into development processes, and to inform global actions. The resulting **increased awareness** of all stakeholders **reinforces the collective responsibility** in tackling climate change, and **identifies opportunities for shared action**. These inclusive partnerships are established on a shared vision, that put people and nature at the centre. These synergies also serve as a line of communication for expanded support to scale up CBA interventions. The CBA Country Programme Strategy (CCPS) of each country is also aligned to its national and sub-national planning and adaptation priorities. Hence, the country programmes have the foundation to influence the policies and development programs at various levels.

**The following case studies highlight how CBA projects have integrated these principles into their design and implementation to build the adaptive capacities of local communities in SIDS.**

## Results snapshot from 2009 to 2018



# Participating Countries

## Pacific



Cook Islands



Fiji



Federated States of Micronesia



Kiribati



Marshall Islands



Nauru



Niue



Palau



Papua New Guinea



Samoa



Solomon Islands



Timor Leste



Tokelau



Tonga



Tuvalu



Vanuatu

## Caribbean



Antigua & Barbuda



Barbados



Belize



Cuba



Dominica



Dominican Republic



Grenada



Guyana



Haiti



Jamaica



Saint Kitts & Nevis



Saint Lucia



Saint Vincent & Grenadines



Suriname



Trinidad & Tobago

## Atlantic & Indian Ocean



Cape Verde



Comoros



Guinea Bissau



Maldives



Mauritius



Seychelles

## Mekong/Asia



Cambodia



Laos



Vietnam



Sri Lanka



# CBA project examples

## Climate-smart agriculture on Cuban farms



### BACKGROUND

The Cooperativa Agrícola Niceto Pérez (CANP) is an agricultural cooperative located in the Cuban municipality of Güira de Melena, around 50 kilometres south of Havana. The area is particularly vulnerable to climate change due to its physical landscape of the swampy, low-lying Havana-Matanzas Plain, and its partially flooded forests. Despite these features, agriculture remains the main source of subsistence for the communities in this region. Years of poor agricultural practices have contributed to a deterioration of soil quality, increased incidence of pests and diseases, and soil salinization. From 2014-2017 Cuba also experienced one of the most extensive droughts in 115 years, affecting 80 percent of the country, including crop and livestock production. To compound these problems, in September 2017 Hurricane Irma devastated the island, severely crippling the economy including the agricultural sector. For Cuban farmers the effects of climate change such as irregular rainfall, high temperatures and unpredictable weather patterns is a real and daily struggle.

Considering these challenges, the CANP embarked on a project to build the adaptive capacity of its farmers to climate change. The CANP has a membership of 204 farmers across 64 farms, representing a total of 540 hectares of land dedicated to the cultivation of crops and cattle farming. The cooperative is the primary source of income for 10 small settlements with a total population of 1,400.

### ADAPTATION STRATEGIES

The CBA project worked with key stakeholders in the agriculture and research sectors to provide training to the farmers on climate-smart agriculture techniques and good agricultural practices, to build the resilience of their farms to climate change.

Project activities involved working with research centres in Cuba that have developed varieties of crops that are more resistant to extreme weather, including tomato, onion, garlic, chilli, banana, sweet potato and taro. The farmers were educated and trained on these new varieties of crops, and started using them on their farms to increase production during drought periods.

The project has also facilitated partnerships with the University of Havana to train farmers in the use of bio-stimulants on their farms. The stimulants are naturally derived fertilizer additives used to enhance plant growth, nutrient use and resistance to temperature and water stresses, thereby increasing yields. Farmers have also eliminated the use of artificial chemicals on their farms and are now using organic products, repellent plants, crop rotation, vermiculture and beneficial micro-organisms to control pests and diseases, as a result of the training from the University.







Farmers monitor drought resistant plants in their fields



Farmers share knowledge at an agricultural outreach session

As part of the CBA project, the National Meteorological Services also trained farmers in the use of early warning systems to detect and monitor the concentrations of tropospheric ozone. In the stratosphere, ozone is a helpful shield against ultra-violet radiation. However, most tropospheric ozone forms when nitrogen oxides, carbon monoxide and volatile organic compounds react in the atmosphere in the presence of sunlight. These reactions produce tropospheric ozone, which is a secondary air pollutant and a greenhouse gas. Over 20 years of data collected and analysed by the Institute of Plant Health Research and the National Centre of Scientific Research have suggested that tropospheric ozone reduces the ability of plants to photosynthesize and sequester carbon, affects water regulation, flowering and fruiting and ultimately affects crop health and productivity. The National Meteorological Services worked with the farmers to create communication networks using mobile phones, which allowed farmers to receive SMS text message updates on weather and ozone conditions. The system enabled farmers to be better prepared by employing adaptive measures such as increasing irrigation and applying a lime hydrate solution during times of increased ozone concentration. These two measures protect plant foliage and significantly reduce instances of crop failure during these periods. The early warning systems also made it possible to introduce other meteorological warnings and agro-meteorological information, which were used to plan crop irrigation based on the weather forecast, thus making more effective use of water supplies.

Other project activities included the establishment of three greenhouses, education and outreach to schools and other farms, development and dissemination of agro-ecological manuals, and monthly training and knowledge-sharing sessions. Farmers are also using other good agricultural practices such as planting along contour lines to reduce soil erosion, crop rotation, and reducing the use of heavy machinery to prevent soil compaction.

## RESULTS AND IMPACT

To date, 210 hectares of farmlands have come under sustainable management through these climate-smart measures, and more than 90 percent of the farmers apply these techniques on their individual plots. At the beginning of the project in 2014, the production rate of the farmers was 12 tonnes per hectare, this has increased to 29 tonnes per hectare as of 2018. The farmers also experienced a 25 percent increase in their average yearly income due to increased production and quality of crops. The capacity of the CANP has been built such that it now acts as a demonstration site and training centre on the island. In 2018, 31 producers from 7 provinces and 10 municipalities around Cuba participated in training workshops hosted by CANP, facilitating the sharing of technology and the dissemination of information.

# Disaster preparedness for persons with disabilities in **Trinidad and Tobago**



## BACKGROUND

Trinidad and Tobago is a small island nation vulnerable to climate change-induced hazards including flash flooding, landslides, bush fires and tropical storms. Traditionally, national disaster preparedness efforts largely excluded persons with cognitive disorders such as autism, cerebral palsy, Down syndrome, dyslexia, or dysgraphia. To address this gap, the Digicel Trinidad and Tobago Foundation, the NGO arm of the private-sector telecommunications company DIGICEL, embarked on a disaster risk reduction (DRR) programme with eight special schools across the country, to increase their resilience to climate change and other natural disasters.

## ADAPTATION STRATEGIES

The project developed resilience within the special-needs community by embracing a public-private partnership (PPP) approach. These partnerships engaged national agencies such as the Office of Disaster Preparedness and Management (ODPM) in Trinidad, the Tobago Emergency Management Agency (TEMA), the Trinidad and Tobago Fire Service (TTFS) and relevant Disaster Management Units

(DMUs) of the Ministry of Rural Development and Local Government. Project activities focused on building relationships and increasing interactions and trainings between these agencies and the special-needs schools. Main project activities included provision of disaster preparedness training to the project beneficiaries, facility inspections and upgrades to the schools, climate-change education and awareness, and revision of the national disaster database to include persons with disabilities (PWDs).

## RESULTS AND IMPACT

Thanks to the project, 50 teachers and caregivers, and 350 persons with disabilities participated in initiatives to boost disaster preparedness and climate change adaptation. Workshops and trainings focused on first aid, proper use of fire extinguishers, evacuation drills, preparation of personal disaster kits and emergency checklists, and development of disaster management plans for each school and household. Interactive songs, puppet shows, performances and practical demonstrations were utilized to teach students with



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