

# WORKSHOP REPORT

## CLIMATE CHANGE WORKSHOP

For Junior Technicians from the MEECC – December 11<sup>th</sup>, 2018

*Compiled by Michele Martin for the GCCA+ Component A and the MEECC*

### BACKGROUND

As a small island developing state, Seychelles is extremely vulnerable to the impacts of climate change, such as sea level rise, salt-water intrusion, heavy rains and flooding, coral bleaching and droughts. It is critical that the population of Seychelles becomes more aware and pro-active in terms of how they can better prepare for present and future impacts of climate change. The Ministry of Environment, Energy and Climate Change plays a critical role in planning and coordinating climate action to both mitigate and adapt to climate change. The Government of Seychelles' GCCA+ capacity building program is working with the MEECC to help build capacity within the Ministry to take on this leadership role. The workshop aims to familiarize MEECC junior technicians with the basics of climate change science, and help them explore how climate change relates to their work, and what they can do to help Seychelles become more resilient.

### WORKSHOP OBJECTIVES

- 1) To increase MEECC staff's awareness of climate change and its expected impacts on Seychelles' main populated islands
- 2) To explore actions needed to help Seychelles mitigate climate change and adapt to its impacts, and what is already being done in the country.
- 3) To inspire workshop participants to apply what they have learned to their work in the MEECC.

### PARTICIPANTS

The workshop was attended by 14 people, representing staff from all different departments at the MEECC, including the majority of junior and even senior technician staff from CAMS (including one from each Praslin and La Digue). A scan of the registration form is attached in Annex A. The workshop was facilitated by Michele Martin and Iris Carolus from the GCCA+.

### WORKSHOP AGENDA

time	Agenda item	Presenter
8.30	Welcome and introductions, review of agenda, icebreaker	Iris & Michele
8.45	Brief Introduction to Climate Change Science	Peter
9.30	Break	
10:00	Climate Change: Impacts, Projections and Actions	Michele
10:20	Activity: Climate Change mini Audit of Le Chantier Mall	Michele
11:30	Group work: Design a climate proof & eco-friendly building & garden	Michele & Iris
12:30	Lunch	
1:00	Field Trip to view sites affected by climate change	Michele, and Iris
3:30	Discussion of observations, conclusion of workshop, evaluations (onsite)	Michele and Iris

### WORKSHOP EXPENSES AND CONTRIBUTIONS FROM PARTNERS

- The workshop was organized and facilitated by the GCCA+ team.
- Lunch and snacks as well as the bus transport for the field trip were covered by the GCCA+.
- The venue and AV equipment were supplied by UNDP PCU at Le Chantier Mall.
- Each participant received a copy of the S4S citizen's guide to climate change – these copies were donated by the EBA project. A magazine was donated by WCS as a prize for the icebreaker game.

## WORKSHOP DESCRIPTION

The MEECC had confirmed 18 participants for the workshop but only 14 came. The workshop started almost 45 minutes late but went more or less as planned.

The first activity was an icebreaker “ecobingo” to encourage everyone to start thinking of climate change. This game requires all participants to interact with each other and begin to engage with the ideas of climate change sustainability. A prize was donated by the NGO Wildlife Clubs of Seychelles (a magazine featuring protected areas).

Peter’s presentation on the science of climate change started with another activity whereby participants had to work together to match up climate change terminology with definitions. Their score showed that the group already did have some understanding of the issues. This activity was followed by a PowerPoint presentation led by Peter, highlighting some of the key causes of climate change as well as an explanation of how climate changes, and a clarification of the issue of climate change is different from ozone depletion. This presentation requires at least 45 minutes to allow enough time for explanation and interaction.

The next session led by Michele was a pictorial overview of the impacts of climate change currently facing Seychelles including some graphs from the SMA on past trends and future projections.

Following this session, participants went on a walkabout around in and around the building we were in (Le Chantier Mall) to investigate any climate friendly or climate proof features and suggest improvements or retrofits that could be implemented (these were shared in a discussion afterwards). (worksheet provided in Annex B). After this discussion, Michele showed slides of the sites to be visited in the afternoon session and briefed participants on what we would be observing on the trip.

The site visit in the afternoon included a tour of several sites in north Mahe that have been affected by climate change and/or are sites where actions are being taken to adapt to or mitigate climate change. The site visit notes are provided in Annex C..

Workshop photos can be found in Annex D.

## WORKSHOP EVALUATION

At the end of the session, participants were invited to fill in an evaluation form. Out of a total of 14 participants 13 submitted a form. The findings are summarized in the table below.

### Workshop evaluation responses – summary from 11 participants

1. Please tell us at least one new thing you learned	2. What did you enjoy about the workshop?
<ul style="list-style-type: none"> <li>• About climate change impacts in Seychelles (x5)</li> <li>• Adaptation strategies / on the coast (x4)</li> <li>• About urgency of taking action on CC now (x2)</li> <li>• About natural disasters that happened in Seychelles (x2)</li> <li>• About greenhouse effect/ gases (x2)</li> <li>• Difference between greenhouse gases &amp; ozone layer</li> <li>• CC is an old topic</li> <li>• Difference between weather and climate change</li> <li>• How erosion has changed over the years</li> </ul>	<ul style="list-style-type: none"> <li>• Field trip (x12)</li> <li>• Locations picked for site visits</li> <li>• Everything</li> <li>• Clarity and explanations</li> <li>• Practical/interactive games</li> <li>• Addressing the issue of how humans can contribute to stop climate change</li> </ul>
<b>3. What didn't you like?</b>	
<ul style="list-style-type: none"> <li>• Nothing / all was fine (x11)</li> <li>• Seeing how we don't take care of our environment</li> <li>• Too short</li> </ul>	
<b>4. How can you apply what you learned in your work?</b>	
<ul style="list-style-type: none"> <li>• Teaching others / sharing about CC (x5)</li> <li>• Keep in mind what I learned when doing projects/solving problems (x4)</li> <li>• Share with colleagues who did not attend (x3)</li> </ul>	

- Conduct a census on how CC affects biodiversity/endemic species
- Can apply what I learned to do more effective graphic design work
- Can apply enhanced knowledge from workshop to environmental engineering

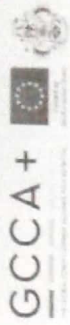
Numbers indicate how many participants wrote a similar response.

## **CONCLUSION AND RECOMMENDATIONS**

Overall, the workshop was a success and resulted in some useful discussion about climate change impacts and how Seychelles is addressing climate change. A large proportion of the participants were from the Climate Change Division and so do address climate impacts in their work. The feedback from all participants was overwhelmingly positive: they really enjoyed the site visits and reported that they learned new information about climate change, impacts to the coast particularly, and efforts being done to address climate change. Many participants indicated a commitment to try and apply what they learned to their work and to share new concepts with their colleagues.

Participants made no specific recommendations, however, given the positive response to the workshop, it is recommended that further opportunities to bring the two departments together to continue learning about climate change impacts and action would be beneficial.

ANNEX A – WORKSHOP REGISTRATION



GCCA+ WORKSHOP REGISTRATION FORM

Date: Dec 7 / 2018 Event: CC Workshop MEECC technicians Venue: UNDP / PCU

NAME	ORGANISATION	PHONE	EMAIL ADDRESS
Dominique Dina	MEECC	2536117	Dominique.Dina.private@gmail.com
Mandy Labaudallon	MEECC (CAMS)	2823805	mandylabaudallon@env.gov.sc
collarikal Arusal	MEECC (CAMS)	2823729	Sorrisol@env.gov.sc
Hendrick figeno	MEECC (CAMS)	2725217	hfigaro@env.gov.sc
Allison lucas	MEECC (CAMS)	2823730	alucas@env.gov.sc
HELENE ROSE	MEECC (CAMS)	2722322	h.rose@env.gov.sc
Souienne Bibi	MEECC (CAMS)	2722115	Souiennebibi@gmail.com
ANIE SIMÉON	MEECC (CAMS)	2822779	annie.simeon@env.gov.sc
Nigel Simeon	MEECC (CAMS)	2723441	n.simeon@env.gov.sc
Joël Frichot	MEECC (CAMS)	2526250	JoelFrichot@outlook.com
Tiffany Laglaire	MEECC	2822772	tiffany@env.gov.sc
Darrel Ethève	MEECC (EAPS)	2822775	dethève@env.gov.sc
Doris Frenuist	MEECC (EP)	2723885	D.Morel@env.gov.sc
Allen Gervais Comettant	MEECC (PECO)	2716507	a.comettant@env.gov.sc

## ANNEX B – CLIMATE WALKABOUT WORKSHEET

### **WORKSHEET – CLIMATE CHANGE WALKABOUT**

Walk around the Le Chantier mall building and surrounding grounds. Observe any positive features (climate/eco-friendly and climate proof), as well as negative features (unsustainable and/or risky/unsafe considering climate impacts). Keep track of your observations, questions and recommendations using the form below for guidance. Think about how things are done (practises) as well as infrastructure and surroundings.

#### **ENERGY**

SUSTAINABLE & CLIMATE PROOF	UNSUSTAINABLE & RISKY

IDEAS FOR IMPROVEMENT:

#### **WATER**

SUSTAINABLE & CLIMATE PROOF	UNSUSTAINABLE & RISKY

IDEAS FOR IMPROVEMENT:

#### **WASTE**

SUSTAINABLE & CLIMATE PROOF	UNSUSTAINABLE & RISKY

IDEAS FOR IMPROVEMENT:

**BUILDINGS & OTHER INFRASTRUCTURE (PARKING LOT, DRAINS, ROADS...)**

SUSTAINABLE & CLIMATE PROOF	UNSUSTAINABLE & RISKY

IDEAS FOR IMPROVEMENT:

**BIODIVERSITY & ECOSYSTEMS (IF YOU CAN FIND SOME!)**

SUSTAINABLE & CLIMATE PROOF	UNSUSTAINABLE & RISKY

IDEAS FOR IMPROVEMENT:

---

NOTES:

---

PRIORITY AREAS FOR IMPROVEMENT IF YOU COULD RENOVATE:

## ANNEX C – SITE VISIT NOTES

# SITE VISIT OVERVIEW

CLIMATE CHANGE WORKSHOP FOR MEECC, 7<sup>TH</sup> DECEMBER, 2018

### **START: LE CHANTIER CAR PARK**

Briefly review the purpose of the site visits:

- *for participants to see examples of climate change impacts, mitigation and adaptation efforts.*

Remind participants to take note of the examples we will show them, but also to keep an eye out for other signs of climate impacts and action.

### **STOP 1: NORTH-EAST POINT – COASTAL EROSION**

#### **PARK NEAR THE EBA WETLAND SITE**

- North east point has been identified as one of the worst cases of severe erosion on Mahe in several studies. The wetland has also been severely compromised by human activity.
- Observe: What could some of the causes of erosion be? Sea level rise, storms, the road on the dune, loss of vegetation, changes to the flow of the river outlet.
- Action to address it: rock revetment, sea wall, and more recently beach nourishment (sand extracted at sea was added to the beach – this is very very costly, and usually results in the sand disappearing again!)
- Other possible factors: reclaimed land in Victoria caused changes to the currents and movement of sand along the coast. Also degradation of coral reefs offshore would reduce natural protective measures of reefs that normally dissipate wave energy
- Observe: What human activities have affected this wetland? What ecosystem services does a wetland provide? How do they help us deal with climate change? Why are coastal wetlands worth protecting?
- Action to address it: EBA project is rehabilitating the wetland...
- Reflect: How is this area used by locals and or tourists? What might it look like in 50 years?
- What can we do: EBA project plans...

### **STOP 2: GLACIS MARKET BEACH – ROCK REVETMENTS TO PROTECT FISHING INFRASTRUCTURE**

#### **(PARK JUST NEXT TO THE FISHING BOATS WHERE THE REVETMENT WAS DONE)**

- This is a much more recent rock revetment project to protect the beach and nearby road, and yet retain access to the sea for local fishers.
- Observe – the angle of the rocks
- Reflect – how has this beach changed over the years? How would this area have looked before people were in Seychelles?
- Observe – what may have caused the erosion in the first place? Look around – a road right on the dune, vegetation gone, intense human activity, sea level rise.....
- What role would the nearby river and wetland play in protecting the beach and/or eroding it?
- How will the new look affect the way the local community uses the beach for leisure or fishing? Or tourists?
- Is the road protected now if the sea level rises 1m by 2100?

BIODIVERSITY – how does climate change impact the fishing industry in terms of the fish, livelihoods, etc.?

### **ALONG THE WAY AT VISTA DO MAR (BY BLISS HOTEL) – LANDSLIDE**

No need to stop - just remind people of the landslide back in 2005

- In 2005, 34 families experienced severe damage to their homes when a landslide occurred after heavy rains up on the hillside. At least ten of the homes were condemned and others at risk. The government offered compensation to help the families at risk to relocate and rebuild.
- DRDM is trying to get better information about areas like this that might be at risk, to avoid building or also make contingency plans.
- Deforestation, severe dry periods followed by heavy rains are a great recipe for landslides!
- The landslide back in 1862 has been attributed to deforestation, drying out, and then heavy rains

### **STOP 3: MARE ANGLAISE BEAU VALLON**

(PARK JUST OPPOSITE THE INDIAN SHOP WHERE THERE IS SPACE ON THE RECLAIMED LAND)

- In 2011, the road here at Mare Anglaise fell into the sea when high tides coincided with high winds and storm surge. The cost to make the repairs was about SR2.5 million.
- The strategy used to build the road back up and prevent future erosion was to install ROCK REVETMENTS. Notice the angle of the slope of rocks. The rocks are meant to break up the waves' energy and help sand deposition.
- Observe: is it working? Which season would have more sand?
- Observe: are there any other issues which might also have helped cause the erosion? Sea level rise, the presence of a road right on the dune that would naturally have had trees and vouldoutye and other vegetation.
- Discuss: how do rock revetments affect tourism and local enjoyment of the beach? What are other alternatives?

### **STOP 4: MONT SIMPSON RIVER - FLOODING**

(GO UP THE ROAD BY CASA DANI, TAKE THE LEFT FORK AND GO UP TO THE TOP, OVER THE LITTLE BRIDGE TO PARK THE BUS)

- This is the site of the river flooding that occurred in 2014 when the river overflowed onto the road causing damage to the road and carrying gravel and rocks into some 10-20 properties below.
- There was a localized incidence of very heavy rain in this area which caused the river to flood. One of the impacts of climate change is changing rainfall patterns and increased occurrence of this sort of heavy rain in a short period of time.
- There are no drains along the road to guide water to the sea or river during heavy rains.
- No work has been done since the incident to install drains although a bank of rocks was put in place to prevent future overflow.
- No heavy rain incidents have occurred since then luckily, but is the problem solved to avoid damages next time?

BIODIVERSITY – how do these floods (and droughts) affect animals and plants in our communities, up river, etc?

- Observe at the bottom of the hill when we leave, the flats on the left are at a bend in the road. The water went straight through the gap and into the ground floor flats. A resident reported that this has happened to her 3 times over the past decade or so.

### **STOP 5: BEL OMBRE FISHING PORT**

- The Bel Ombre Fishing Association has a grant from the GEF SGP to install solar PV on the roof of the ice plant and fish offloading shelter. This will be the first eco-friendly fishing port in Seychelles.
- Solar PV – in the last 5 years the number of homes and businesses has risen exponentially, due to several factors: the PV rebate scheme, the emergence of PV installer businesses (One is located opposite the Silhouette Labriz office). Harold Stores also has panels on the roof...
- What other forms of renewable energy could be viable for Seychelles? What are the factors holding us back from moving towards a low carbon energy supply more quickly?



## **STOP 6: ANSE MARIE-LAURE PUBLIC ACCESS (NEAR BINS) – COASTAL EROSION**

This beach is a good example of sand erosion. The causes may be multiple, including sea level rise and occasional storm surges at high tide. But observe also:

- Parking in the area right by the beach compacts the soil and makes it hard for vegetation to thrive and hold the sand in place during high tides
- Seasonal changes in sand deposit are natural. Normally this beach looks much more eroded during the Northwest monsoon, and roots were covered in sand during the Southeast
- Nearby reclamation works at Bel Ombre port may have changed the currents and thus changed the way that sand is deposited on the beach
- Mary Gears' home next door used sea walls to stop erosion. If built well, with a long slope out to sea, these can help slow erosion, but a perpendicular wall can make erosion worse because the waves crash hard and the energy takes away sand at the bottom of the wall. The government prefers to use more natural methods to slow erosion where possible.
- Compare the area nearby which is still natural and less eroded

**WASTE:** notice the sign in the parking lot area. Public bins located nearby...

- How does waste and littering contribute to the problem of climate change?
- What is being done nationally to reduce waste going to landfill?
- What more could be done?

## **WORKSHOP CONCLUDING DISCUSSION at MARIE LAURE**

- What is the role of MEECC mitigating and adapting to climate change?
- What more should the Ministry be doing? Who are the other key partners to make Seychelles more climate friendly and climate-proof? How do we engage them?
- What will you do differently if anything, as a result of our time spent together today?
- Workshop conclusion, thanks and ask participants to fill in evaluation form

## ANNEX D – WORKSHOP PHOTOS



MEECC participants playing a climate change matching game.



Peter's presentation on climate change science.



Inspecting a drainage infrastructure opposite the marsh under rehabilitation (Under EBA project)



At Glacis beach, reviewing a map of restoration works at the previous site (NE point).