Working Paper Series No. 4

Turning climate science into animations

A lesson in teamwork from the Pacific

(Photo: Ula Majewski/Climate Centre)

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1. Introduction

Two short humorous animation films were produced in 2013 by an alliance of agencies in the Pacific to link climate science with decision-making and preparedness in the region.

The Pacific Adventures of the Climate Crab gives an overview of climate processes, impacts and possible adaptation measures in the wider Pacific region. *Klaod Nasara* (which means "cloud meeting place" in Bislama) focuses on similar topics in Vanuatu and has been produced in three languages (Bislama, English and French). Both films are accompanied by resource toolkits which aim to help facilitate dialogue and action. The project was implemented by the Australian Bureau of Meteorology, the Commonwealth Scientific and Industrial Research Organisation (CSIRO), the Australian and Vanuatu Red Cross and the Red Cross Red Crescent Climate Centre, the SPC-GIZ Climate Change Program, and the Vanuatu Meteorology and Geohazards Department (VMGD). Input was also collected from 14 Pacific island states.[2]

This Working Paper – the fourth in a series from the Climate Centre – outlines the process undertaken to create the animations, including seven steps that may assist development practitioners bringing science to life through animation.

In addition, initial evaluation results outlining the successes and challenges in making the films and ideas for the future are presented.

2. Background

The Pacific climate

Pacific island people are exposed to many climate-related risks and face significant challenges in adapting to them. For example, El Niño and La Niña – the two extremes of the El Niño Southern Oscillation (ENSO) phenomenon – can produce very wet or very dry conditions as a part of natural climate variability. ENSO creates temporary variations not only in rainfall but also sea levels, temperatures and cyclone risk for Pacific island countries.

In addition to this highly variable natural climate, climate change caused by global warming will also increasingly play an influence on the Pacific's climate. In 2011 the Australian Government's Pacific Climate Change Science Program (PCCSP) produced the report *Climate Change in the Pacific: Scientific Assessment and New Research*, outlining the current and projected climate of 15 partner countries. This report highlights that, in addition to long-term changes such as rising sea levels, ocean acidification, higher temperatures and variations in rainfall, increases in the intensity of cyclones and the frequency of extreme rainfall events are likely.

El Niño and La Niña events and climate change have serious implications for the Pacific's water quality and availability, food security, infrastructure like houses and roads, livelihoods and human health. However, good quality climate and weather information, warnings and forecasts can help us anticipate and prepare for changing risks. To understand and address climate change we must not only utilize long-term climate projections for 2100, we must also utilize weather and seasonal forecasts on shorter timescales for addressing more immediate climate risks.

1 Alphabetical order.
2 Alphabetical order.

The Vanuatu toolkit includes bingo and picture cards, depicting actions that can be taken by communities after El Niño alerts, such as water rationing. (Photo: Charles Aurouet/French Red Cross)

Why were the animations made?

Research by the Climate Centre found that, globally, there are very few simple, film resources on ENSO for use in training and planning. The Pacific Climate Animation Project was conceived to help fill the gap.

The project aimed to increase awareness of the science El Niño and La Niña and their impacts, and encourage discussion around how Pacific nations can access forecast information, communicate and work together to take early action to prepare for future El Niño and La Niña events. Some complex concepts such as ENSO and other climate drivers have been difficult to present to audiences using inanimate descriptions and photographs.

The overall aims of producing the animations were:

- To produce two short animation films to be used as communication tools in Vanuatu and small island developing states in the Pacific region; the aim of Climate Crab was to give an overview of climate processes and impacts in the Pacific region as a whole, while *Klaod Nasara* focused on Vanuatu.
- To produce a comprehensive toolkit to accompany each animation, and help facilitators link the information presented in the animations to decision-making and action.
- To engage in a multistage consultation process with key stakeholders in Vanuatu and the Pacific region to ensure that the project was culturally significant, scientifically accurate and targeted at appropriate audiences.
- To develop and implement a comprehensive communication and distribution strategy to ensure that the project was effectively publicized and the films and resources toolkit (along with any necessary training) were delivered to all key stakeholders in Vanuatu and the Pacific region.

Many of the films' characters were conceptualized by Vanuatu-based artist Joseph Siri, based on ideas generated at stakeholder workshops. (Photo: Ula Majewski/Climate Centre)

3. Creating the animations

The project was implemented by a core team in seven steps over a year. The team included three climate scientists, a producer, a communications expert, two climate advisers, an artist, an animator and the project coordinator.

(i) Concept development: June–September 2012

Initial research was undertaken to identify existing climate-related communications tools and animations in the Pacific region to identify gaps and needs. Concept development included initial discussions about the content of the animations between partners and preparations for stakeholder input into the concept design.

(ii) 'Research to reality' workshop: October 2012

A concept development workshop for the Vanuatu film was hosted by the VMGD and delivered by the entire animation project team. Held in Vanuatu, the workshop was attended by a diverse range of stakeholders including government, NGOs, the Red Cross and teachers. The aim was to brief stakeholders on the creation of the films, as well as gather ideas and input on the film and resource toolkit content. Box 1 outlines the workshop agenda.

Notes were taken and ideas summarized and considered in the development of the storyline and characters. It was decided that the main audience would be at community level across Vanuatu, given that VMGD issue El Niño alerts when one develops and they want to improve people's understanding of the process. Many ideas generated at the Vanuatu workshop, such as the "cloud meeting place", the parrot mascot and personal experiences of El Niño and La Niña impacts were subsequently used in the film.

***Research to reality* workshop: the agenda**

- Briefing on the project.
- Overview of climate variability and change in Vanuatu and the Pacific.
- Exploration of how stakeholders currently explain climate concepts and what stories they use using a "speed-dating" exercise. (Instructions on how to run this exercise are in the toolkits.)
- Discussion on what climate communication products already exist and how the proposed animation product could complement rather than duplicate what already exists.
- Break-out groups and presentations on the following topics: What do people need to know to understand seasonal forecasts and take action? How could the animation help overcome some of the challenges in communicating climate? What characters could represent Vanuatu and/or the Pacific?

Stakeholders working across the Pacific were asked for input on the regional film by email and telephone. They were given the same questions posed to discussion groups at the Vanuatu workshop. These initial consultations gathered invaluable feedback based on people's experiences and gave the animation team a clear picture of the contexts the products could be used in.

Many of the ideas and examples gathered from across the Pacific were subsequently used in the script and came to life in the animations. Past drought responses in Tuvalu and Kiribati, for example.

(iii) Pre-production: October–November 2012

All feedback from initial regional and Vanuatu consultations was gathered together under themes and useful narratives were shortlisted. The team then met for three days in conclave (no mobiles!), utilizing feedback from stakeholders and their own knowledge and experiences to write key messages and draft storyline for the Pacific and Vanuatu films.

Characters, actions and music were all brainstormed in creative debate: the scientists would keep the science accurate; the climate advisers indicated what would be appropriate for practitioners and communities, and the producer would pull everyone into line by indicating what was and wasn't possible.

The producer then used all these inputs to create standard film *treatments*, outlining plot and characters – important for coherence across stakeholders and in helping in developing the story ideas before proceeding to the full script. Reactions to the treatments were received from core project partner organizations.

The Melbourne-based animation team brought character ideas to life. Feedback was gathered from across the Pacific to ensure cultural and geographical references were accurate. (Photo: Ula Majewski/Climate Centre)

(iv) Product development and testing: November–March 2013

The producer staggered the development of each animation, with the Vanuatu film process begun first. Given the Vanuatu film was always one step ahead of the regional film, this enabled the animator to incorporate feedback on the Vanuatu characters while other team members were busy getting feedback on the regional story board. The films would not have been produced within the timeframes without this layered approach.

Once the treatment was created, the animator worked with the artist to create a storyboard, outlining each scene in the animation, and a sample sketch and narrative. Illustrations were drawn first by a Vanuatu artist and then utilized by the Australian animator to create the animations. The artist and animator drafted drawings of each of the characters, such as members of the string band, created short animations of the main characters such as the parrot in the Vanuatu film and the crab in the Pacific film. The full team started work on the toolkits and created a draft of some of the content. The first draft of both scripts were also finalized by the animation team.

Testing the resources produced was an important part of this step. In Vanuatu, two workshops were held in February 2013, one for national stakeholders and one for Vanuatu Red Cross staff. Two community consultations occurred to gather feedback on characters and the storyboard. A total of 30 organizations and government departments were consulted.

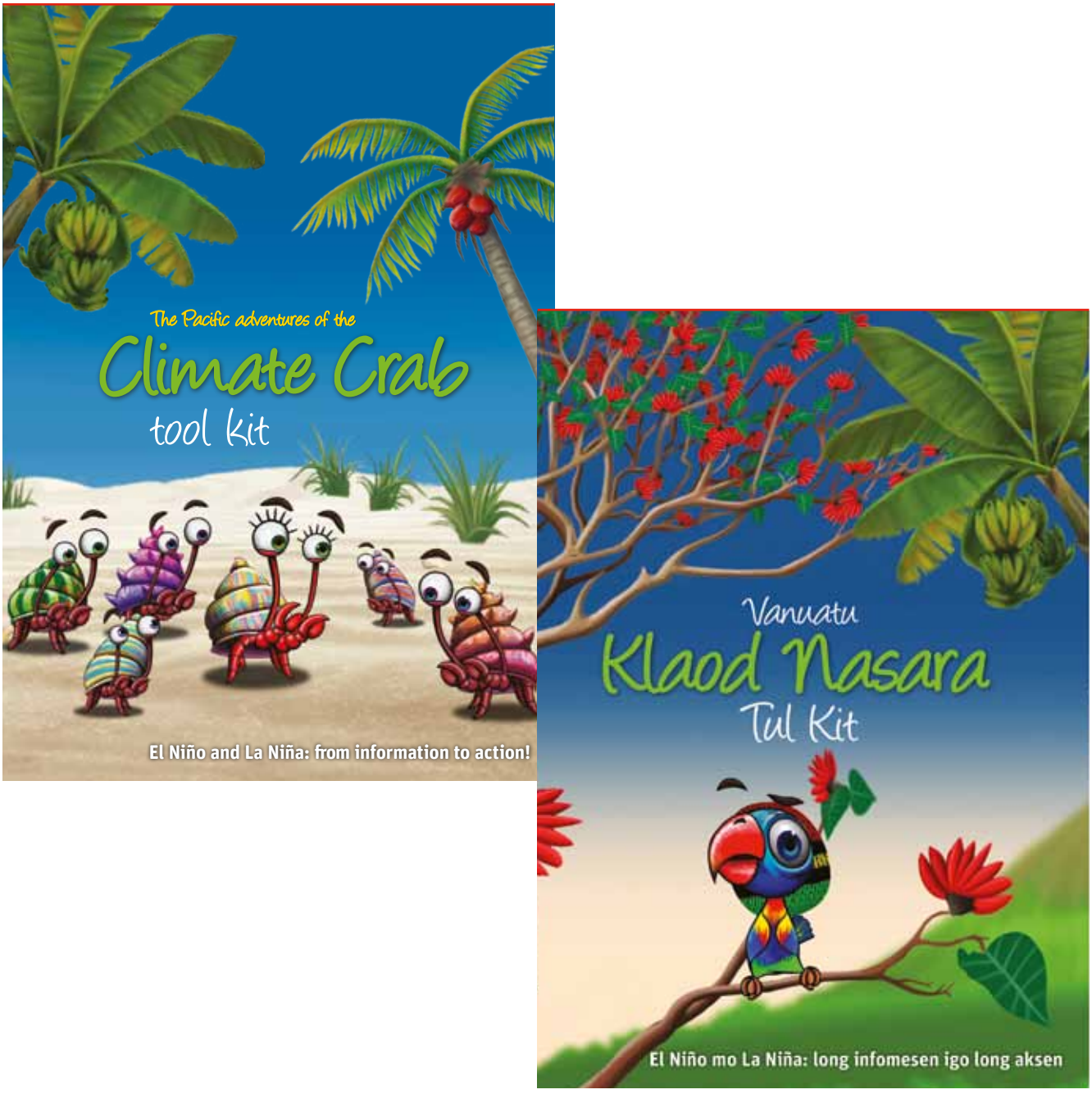
Across the Pacific region, the storyboard was sent to at least 10 regional organizations with a timeline for providing feedback. The animation team also followed up with face-to-face meetings with these organizations in Australia, Fiji and Samoa. A presentation was given at a regional meeting of representatives of Pacific governments, including meteorological services and regional organizations. This feedback was invaluable and included a need to simplify some terms, clarify preparedness and science messages, refine character design and improve geographical reference points.

Another strong message was that stakeholders were excited about the development of the animation. The team met in person and on conference calls to refine the entire script and characters based on this feedback.

(v) Final production: March–June 2013

Getting cultural and geographical references right was key to enabling people to relate to and understand the films. Vanuatu examples included drawing a yam calendar showing land preparation and growth as the year progressed. These illustrations also needed validation from experts such as agricultural extension officers. Since the script included a lot of technical content, it took a long time to finalize as the team wanted to strike the right balance between technical accuracy and simplicity.

The team gave feedback on the development of various scenes reflecting the geographic and cultural characteristics of each country being represented. The translations, voiceovers and music were arranged. This took a lot of work because music was sourced locally and the Vanuatu voiceovers were completed by busy, high-profile local personalities. Once scripts were eventually finalized, the animator went into lock-down and finalized the films.



(vi) Launch, promotion and distribution

Climate Crab and the regional toolkit were launched by AusAID on 2 July 2013 at the Pacific Meteorological Council meeting in Nadi, Fiji Islands. The launch was attended by key regional actors from the climate adaptation, disaster risk reduction and scientific sectors, and got good international television, print, radio and online exposure. The animation was also screened at the 12th Pacific Science Inter-Congress in Suva and at the Pacific Climate Change Round Table and the Joint Meeting of the Pacific Platform for Disaster Risk Management and the Pacific Climate Change Round Table.

Klaod Nasara and the Vanuatu resource toolkit were launched by the Australian Deputy High Commissioner to Vanuatu at the VMGD in Port Vila on 5 August 2013. This national release also generated media nationally and within the Pacific region. The animation was also screened at the two communities in Shefa province who had given significant feedback on the films.

Some 5,500 DVD copies of the *Climate Crab* film and toolkit were distributed to:

- Red Cross National Society headquarters and branches across the Pacific
- NGOs and civil society organizations
- Meteorological offices, national disaster management offices, environment departments and other ministries, prime ministers' offices and climate change offices (or the equivalent) in at least 15 countries
- Key regional bodies such as the Secretariat of the Pacific Regional Environment Programme and the Secretariat of the Pacific Community
- Schools in Fiji, Samoa, Tonga, Kiribati and Niue, linked to the creation of new climate curricula
- Vocational education providers, libraries and University of the South Pacific (USP) campuses.

Community consultations like this one were conducted in Vanuatu. Feedback was then incorporated into the final products. (Photo: Ula Majewski/Climate Centre)

A total of 3,500 DVDs featuring the *Klaod Nasara* animation and toolkit, and 1,100 printed toolkits were provided to:

- All Vanuatu Red Cross branch offices and sub-branch offices in every province as well as national headquarters
- VMGD provincial stakeholders, such as the community-based rainfall network, and famers (via agricultural assistance officers)
- Numerous organizations working in urban and rural communities, including GIZ, CARE International, the Adventist Development and Relief Agency, the Farmer Support Association, Live and Learn, Oxfam, Save the Children, the Vanuatu Christian Council and Wan Smol Bag
- Local community-based groups such as the Njuna-Pele Marine Protected Area Network
- Agriculture, education, environment, fisheries, forestry, health, and disaster management offices of government
- All schools
- Vocational education providers, libraries, rural training centres, and the USP Port Vila campus.

Feedback from Red Cross branch officers indicates the tool is being used throughout Vanuatu in communities and schools.

(vii) Evaluation

A key part of the project was evaluating its success. The first stage in this process related to the regional and Vanuatu roll-out and the Vanuatu train the trainer workshops, and the second followed up how they had been used. After the films were distributed all email feedback from stakeholders was collated. Standardized written evaluations were conducted at the training of trainers for *Klaod Nasara* and at other stakeholder events in Vanuatu.

In the second stage a longitudinal evaluation is planned to ascertain how effective the Vanuatu animation has been at the community level, and how *Climate Crab* has been used at regional and national level by a cross section of stakeholders.

Radio legend Ambong Thompson records his voice for the Vanuatu film. (Photo: Ula Majewski/Climate Centre)

4. Impact so far

Both animations have received an overwhelmingly positive response from a diversity of stakeholders in Vanuatu, the Pacific region and beyond. Feedback has indicated that the colourful and appealing style and user-friendly language has assisted in communicating important concepts in an engaging way to a variety of non-scientific audiences.

These include school students and communities. The animations have been highly useful in communicating ENSO, one of the major climate drivers in the Pacific region, and the effects of climate variability as opposed to climate change. In this sense the feedback indicated that the films have filled an important gap in climate communication and education in the region.

Klaod Nasara

In Vanuatu distribution of the animation was accompanied by a series of "train the trainers" for stakeholders. In total 104 people attended four *Klaod Nasara* train the trainer events and over 80 per cent of these responded that their knowledge of El Niño and La Niña improved as a result of watching the film and attending the training (some already had knowledge before the events).

More than 80 per cent of attendees thought the film was "very easy" or "easy" to understand. Suggestions from stakeholders for expansion include printing more El Niño and La Niña posters to leave with communities and schools and including more photos of dry and wet impacts on the poster. Branch officers also suggest return visits to revise what has been learnt and link the animation to preparedness in communities.

> *"Very interesting and very excellent media to explain La Niña and El Niño to farmers"*
> ***-- Vanuatu Farmer Support Association***

> *"Congratulations indeed! I was enjoying the animation this morning – really good – easy to understand, and funny too. The art work and voice, music, all complement each other so much"*
> ***-- Ellenson Taurakoto, Pacific Media Assistance Scheme[3]***

> *"The animation is fantastic and a great tool to work with around the country"*
> ***-- Jacqueline de Gaillande, CEO, Vanuatu Red Cross Society***

Climate Crab

An overwhelming number of representatives from partner countries expressed interest in translating the Climate Crab animation into their national language to enable wider national outreach. Some countries suggested that the creation of more country-specific animations similar to *Klaod Nasara* in the future. Niue and Tonga have already developed their own animation translation.

> *"Congratulations for the successful release of the animations…They have been well received by many of my colleagues here in the ministry. Well done"*
> ***-- Sunny Seuseu, Principal Scientific Officer, Meteorology Division, Ministry of Natural Resources and Environment, Samoa***

3 Personal view; not necessarily PACMAS's.

"Our Management team here led by our Executive Director is requesting your permission to use this excellent tool in our national consultation programme"
-- Office of Climate Change and Development, Papua New Guinea

"This is indeed superb, and hope the idea can be extended to provide a more generic description of ENSO and its impacts worldwide"
-- Head of Climate Services, World Meteorological Organization

"These are very much useful and helpful to do with awareness on climate change to different targeted audiences in Kiribati. We really appreciate these and will definitely use/promote them as well in our national programs related to awareness, communications and education"
-- Department of Environment, Kiribati

Tonga translates *Climate Crab*

The Tonga Red Cross worked in collaboration with the Meteorological Service to translate *The Pacific Adventures of the Climate Crab* into the national language. The Tonga Red Cross is utilizing the animations in training of emergency-response volunteers alongside education about using seasonal forecasts for preparedness. The film is being aired on national television as well as in community workshops about early warning.

Consultation workshop participants get animated sharing stories of how they communicate weather and climate with communities during a "speed-dating" exercise. (Photo: Ula Majewski/Climate Centre)

5. Key challenges

Any multilateral, multi-stakeholder project inevitably faces challenges. Below is a summary of key challenges that were encountered during the development of the animations and a commentary on how they were addressed, under three broad headings: technical, related to the science and making of the films; operational, linked to the management of the project; and cultural, linked to making films relevant in at least 15 countries.

Challenge	How it was addressed
Technical	
Developing storylines that were scientifically accurate, culturally relevant and effective in inspiring people to take action.	Scientists worked with Red Cross staff who had experience working with multiple audiences. Feedback was gathered from across the Pacific to ensure that the film not only portrayed the science but also be something people wanted to watch.
Trying to work out what the most important messages were to convey in just four minutes of animation.	Feedback from consultations guided the team on what was missing from currently available resources.
Getting the balance right between science and action messages. It was difficult to find actions that could be generalised across the whole of Vanuatu and the Pacific region.	The resource kit focused on linking the ideas in the film to local context.
Managing different expectations of how things should be visualized, given that every team member had a picture of how the animations might look.	Some aspects of the film were managed by groups within the animation team. For example, those with experience in agriculture and disaster preparedness related messages worked on those components with the artist and animator.
Operational	
Operating within the constraints of a tight project timeframe due to budget and human resource deadlines.	The film would not have been possible without the volunteer coordinator. She kept a sharp eye on timelines and developed a calendar showing what steps needed to happen when to be able to meet the deadlines. A staged approach to production with the Vanuatu film slightly ahead of the regional film helped a lot too.
Working with slow internet in Pacific countries given large size of many animation files.	Dropbox used to deposit files. They would be downloaded once and then shared amongst team members in Vanuatu by USB.
Lack of funding to conduct follow-up trainings and embedding the sustainability of the project's use.	This project was embedded within the Red Cross network, thereby creating some level of sustainability. Every attempt was made to piggyback existing projects and meetings. The Red Cross and VMGD also secured funding to conduct provincial level training in Vanuatu as the next steps after national training.

Taking on board such diverse feedback from across the region about how things could be represented.	Feedback was collated according to themes and scenes. It required the team to trawl through the script together and decide on which suggestions to incorporate based on how they could enhance the film. The team wanted to ensure that the film would remain accurate and that the audience could relate to it.
Agreeing on the final version of the scripts. This was due to ongoing feedback and technical detail that we had to be clear on.	Groups within the team worked on specific challenges in the script based on areas of technical expertise. Sometimes one or two people within the team with the most relevant experience were tasked with making a final decision on a small detail.
Cultural	
For the regional animation, creating characters, a story and an aesthetic that was inclusive, entertaining and relevant to highly diverse audiences from Papua New Guinea all the way to Cook Islands and which captured the very different effects and impacts of El Niño and La Niña in countries across the region.	Utilizing humour helped create clearer messages. We also received feedback on cultural references, infrastructure and landscapes from people in all countries depicted in the film. Photos were used from the countries to illustrate concepts to the animator.
For the Vanuatu animation, ensuring translations (from English into Bislama and French) were both accurate and understandable.	Revision of the translations was essential. Not only by native speakers, but also by technical people to ensure technical accuracy wasn't lost in translation.
A target audience (for both animations) that was characterized by its diversity and breadth.	Defining the audiences for the films was important early on. But the regional film is being used for much wider audiences than originally intended.
A diverse project team that came from many backgrounds and areas of expertise, that was based in three different countries.	Meeting in person at the beginning of the project was very important. This developed a rapport between all team members that continued for the duration of the project.
Getting cultural idiosyncrasies correctly portrayed (clicking fingers, for example, and the string band for Vanuatu, or traditional houses in Kiribati).	Consulting people from relevant countries and the animator visiting Vanuatu.

The project team included three climate scientists, a producer, a communications expert, two climate advisers, an artist, an animator, a coordinator and others. (Photo: VMGD)

6. Success factors

Collaboration

These films could only have been achieved through collaboration. The pooling of technical and sectoral expertise, knowledge of the Pacific and extended networks enabled input from far and wide.

No one organization could have produced the animations in their current form alone and it could never have reached as many people. The partnerships enabled greater accessibility of science in the wider Pacific. Equally pooling human and financial resources enabled the project to happen. For example, the project utilized someone from the Australian Red Cross Volunteers for International Development programme.

Consultation, consultation, consultation!

Engagement and consultation with many stakeholders from the start of project enabled wider ownership of the products. Consulting and testing helped give the audience a greater sense of ownership of the end products. Many people had seen elements of the project and commented; so when they saw their suggestions come to life it made a great difference.

Teamwork

The animation project benefited immensely from a dedicated Australian Red Cross volunteer who worked for 12 months on the project at the VMGD office. The consultation and coordination required were far greater than was ever envisaged, and having a dedicated coordinator meant the project kept to deadlines.

For many team members the project was only one of many projects on their agendas, and it required ongoing commitment and constant input for more than a year. The core team contributed different knowledge and skills. All team members also had to have the flexibility to see outside their area of expertise; in that sense the team all learnt a great deal from each other – the scientists learned more about end user needs, for example, and end-users learned more about the science and the difficulties in maintaining technical accuracy when simplifying products.

The team meeting in Vanuatu in the island context at the beginning was really important. Many team members, themselves living and working in the Pacific, felt a strong sense of ownership. Developing rapport within the team encouraged honest feedback.

> *"The stars really aligned in that a very committed team came together"*
> ***-- Pacific animation team member***

Conclusions

The animation project largely achieved its objective of creating two science communication tools and resource kits for the Pacific region. Feedback from stakeholders indicates that it is being used widely across all of Vanuatu and the Pacific island nations. The application of the regional film would be enhanced through translation into all Pacific national languages, and there has been interest from many countries in creating country specific films such as the Vanuatu pilot.

Future resources would benefit from collaborations such as these between scientists and end-users of science. These provide the opportunity for wider perspectives, applicability, distribution and learning in climate communications.

Animations and toolkits are here: www.pacificclimatechangescience.org/animations/.

The animation project was a collaboration by the AusAID-funded Pacific Australia Climate Change Science and Adaptation Planning (PACCSAP) programme and the Red Cross in the region, and has brought together a multidisciplinary team of climate scientists, humanitarians, technical experts, artists and film-makers from Australia, Samoa and Vanuatu.

It was implemented by the Australian Bureau of Meteorology, the Commonwealth Scientific and Industrial Research Organisation (CSIRO), the Australian and Vanuatu Red Cross and the Red Cross Red Crescent Climate Centre, the SPC-GIZ Climate Change Program, and the Vanuatu Meteorology and Geohazards Department (VMGD).

EyeSpy Films provided animation production expertise. Generous feedback was gathered from across 14 Pacific nations.