

Kuchuwa Community Project: Indigenous Youth Responses to Water and Waste Management in the Federated States of Micronesia



PACE-Net Plus Final Report

May 2016

This project was completed in May 2016 by the Micronesian and Australian Friends Association (MAFA) with support from staff and students at the Australian National University, the University of Heidelberg and the University of Munich. The project members include Myjolyne Kim, Gonzaga Puas, Nicholas Halter, Manuel Rauchholz, Ingrid Ahlgren, Rebecca Hofmann, Roannie Ng Shiu, Paul D'Arcy and George Carter.

For more information about MAFA and the project:

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Executive Summary

The Micronesian and Australian Friends Association (MAFA) was awarded the PACE-Net Plus seed funding in 2015 to establish a pilot program to record indigenous youth responses to water and waste management and enhance community resilience to climate change in the village of Kuchuwa, in Chuuk Lagoon. This project focused on the impacts of climate change at a grassroots level in a relatively understudied region in the Pacific, with an inclusive approach that incorporated traditional community practices and knowledge and encouraged youth innovation and leadership. This project consisted of a youth-led needs assessment and gap analysis in Kuchuwa in January 2016, followed by a local workshop designed to mobilise youth and community leaders to build their capacity to understand and respond to climate change.

This project achieved two successful outcomes: it assisted the Kuchuwa community to develop water and waste management plans which are based on indigenous strategies and local community participation; and it documented the current water and waste priorities of communities in the Chuuk lagoon, with suggestions for future solutions and collaborations which could strengthen community resilience. In terms of impact, this project was an important means of demonstrating the neglected potential for capacity building amongst local communities affected by climate change by bringing together indigenous Micronesian knowledge and Western frameworks and technologies. By applying this community-focused approach in other contexts, this project could be a powerful vehicle for inspiring and empowering local youth within other Micronesian villages and communities, and helping them to develop their own toolkits for climate action.

Project Description

The Federated States of Micronesia (FSM) are a geographically diverse group of coral atolls and volcanic islands, home to over 100, 000 people. The people of FSM are closely connected to the sea, upon which many of their livelihoods depend. This dependency on the ocean means that the inhabitants of these islands are keenly aware of their fragility and susceptibility to the impact of climate change. At a national level, the government has acknowledged the effects of climate change on the FSM in their *Strategic Development Plan 2004-2023*.¹ Despite the FSM's vocal opposition to climate change in regional and global forums, inadequate funding and technical capacity at a local level continue to be significant factors that exacerbate the effects of climate change. Micronesians face a significant challenge managing waste (both indisposable and biological) and securing energy on a daily basis.

MAFA's pilot project focused on the village of Kuchuwa, on Tonoas [Dublon] Island in Chuuk [Truk] lagoon, collaborating with the Kuchuwa community and the local youth council to enhance community resilience by documenting and implementing local strategies for managing environment, water and waste under a changing climate. It consisted of three phases, parts of which were based on other climate change adaptation materials and projects²:

Phase 1: Youth-led Needs Assessment and Gap Analysis. MAFA representatives engaged the Kuchuwa youth and local village leaders, setting up a dialogue between these groups to facilitate a community workshop in Kuchuwa. This involved several days of meetings to familiarise households with the project's aims and meet government officials on the main island, to plan for the materials that were required to be shipped by boat, and to conduct a visual inspection of the village to identify particular environmental hazards and needs. The first day of the workshop (Thursday 21 January 2016) consisted of a formal welcome and introduction ceremony; a participant survey to assess knowledge of, and attitudes to, water and waste management (see appendix for survey and results); and an opportunity for village elders to make their own personal contributions before the group discussions began.

Phase 2: Participatory Action Research. During the second and third day of research, youth participants were split into groups to identify water and waste risks and develop management strategies that incorporated indigenous knowledge and practices shared by their elders the day before. Groups were asked: to quantify the types of waste and the amounts of waste their households produced; to quantify how much water they use and how

they source it; and to complete a mapping activity to identify key water sourcing and waste disposal areas in the village. Participants were encouraged to formulate new strategies for managing water and waste to present to the broader community as part of a competition the following day. This style of workshop was successful due to the close collaboration with, and involvement of, village elders and leaders, and the ways in which the MAFA researcher team drew on their extensive knowledge of Chuukese language and culture to present specific issues in ways that were meaningful to the youth.

Phase 3: Implementation of Climate Change Strategies. On the final day, the MAFA team discussed potential climate change adaptation strategies used in other parts of the Pacific, with an emphasis on community consultation and planning. Groups then gave creative performances in front of the whole community, explaining the impact of climate change as they understood it, identifying a particular risk related to water or waste in Kuchuwa, and potential adaptation strategies for managing this water or waste. Prizes were offered as incentives for every group, with items such as fishing and sports equipment, a brush cutter and chainsaw carefully chosen to be shared and to benefit the community as a whole. Each group made a public commitment to implement one strategy in their community in the next three months.

Outcomes

The main outcome of this project was the enhancement of community participation confidence in building resilience against climate change, specifically “climate action, resource use and efficiency, and raw materials” as identified by PACE-Net as a key priority. This was demonstrated by the youth-led climate action plans that were presented on the final day of the workshop which proposed to minimise the community’s environmental footprint by managing water and waste more effectively, with strategies to reduce reliance on unsustainable energy sources and manage raw materials more effectively. Kuchuwa youth, along with community leaders, met to elect their officers. They are applying to become a chartered organization. They have been meeting to conduct clean ups throughout Kuchuwa’s sub villages. The latest date was on April 13, 2016 and the community elders have been involved in all these meetings. Prizes such as the brush cutter and chainsaw have been useful in assisting the clean up process. Other community action plans, including efforts to secure a location for garbage disposal, have been more difficult due to resistance amongst the traditional leaders.

This project also allowed the MAFA team to tailor a youth workshop with a specific community-based approach which acknowledges the importance of local and indigenous knowledge and practices. This builds on other climate adaptation projects completed in the Melanesian and Polynesian regions, but tailored to a Micronesian cultural context, with valuable educational materials translated into Chuukese for use in schools and community projects in nearby islands. This pilot project could serve as a template for new climate action plans which are focused at the community-level and introduce practical and effective waste and resource management strategies based on community consultation and youth leadership.

It provided an opportunity for MAFA researchers to take stock of past climate change plans and activities in the FSM, to document the current water and waste priorities of communities in the Chuuk lagoon, and to record indigenous approaches to environmental management.

This is an important first step in climate adaptation when considering that the region is relatively unknown and understudied by the scientific global community. During the project, the MAFA team observed a lack of climate change education and awareness in Chuuk, compounded by the competing and overlapping activities of foreign NGOs and donor groups. Though some existing NGOs have been active in Chuuk in the climate change space for some time, it is not clear whether information is reaching communities at a grass-roots level, as demonstrated by Kuchuwa. Climate adaptation plans at a state and national level are limited by inadequate funding and a cumbersome bureaucracy, and we suggest that donor groups that work directly with local villages and communities are more effective in supporting climate adaptation. Lack of access to technical and scientific solutions is only part of the problem in Chuuk – our research argues that community practices often undermined foreign donor attempts to impose environmental reforms, and that this is a result of donor groups' failures to address the interrelated human, social and cultural factors that are closely tied to climatic and ecological hazards. We argue for a more localised community approach and one which focuses on youth participation.

Impact

One significant impact of the MAFA project is the sharing of knowledge, connecting Micronesian communities and researchers to European and Australian counterparts. The MAFA research collaboration connects several educational institutions, including the Australian National University, Heidelberg University, Munich University, the University of the South Pacific and the College of Micronesia. This collaboration has not only raised the profile of Micronesian communities in the international academic community, but it also connects Chuukese

communities to a broader network of sponsors and organisations in Europe and Australia, and facilitates a translation process that connects academic research with local community knowledge and practical applications. The MAFA team has also tried to raise awareness about its project and climate change in the Chuukese diaspora, through social media and press releases, and by reporting to community groups and political leaders in Guam, Pohnpei and the outer islands of Chuuk.

MAFA has plans to continue strengthening the EU-Pacific partnership in the future with a focus on youth projects and climate change adaptation projects, subject to funding. One member, Manuel Rauchholz, is currently establishing a high school enhancement program in Chuuk State to be run by German volunteer teachers, which he expects to be operational by 2017. MAFA president, Gonzaga Puas, has been in communication with community leaders and officials in the low-lying islands of the Mortlock region in Chuuk. There is community interest in extending the same workshop there in the near future by connecting Kuchuwa and Lukunor Island youth, for example. Gonzaga has also established a Micronesian research institute based in Pohnpei. Another member, Nicholas Halter, has recently joined the history faculty of the University of the South Pacific and will be strengthening the USP relationship with Micronesia and Europe, providing a key link for Micronesian youth interested in further study abroad.

Another impact of this project has been to prompt local community interest in climate change adaptation, an issue which has become significant in recent months due to a long period of drought in Micronesia and the Pacific. Prior to the project, Chuuk had been severely damaged by Typhoon Maysak, evident in infrastructure damage and shipwrecks still visible on the islands today. MAFA's project in Weno and Kuchuwa preceded the FSM government's proclamation of a state of emergency due to high levels of drought, and our research suggested that few Chuukese were aware of the dangerous drought conditions that could be caused by El Nino, and had no water conservation plans in place. With the government struggling to rebuild in the wake of Typhoon Maysak, local communities are particularly vulnerable to other climatic changes like drought, and this project's focus on indigenous knowledge and practices will drive further innovation in climate change management at a local level, driven by local actors and community initiatives, rather than a top down approach from external organisations. We recommend that future initiatives occur at a grass-roots level that emphasises community leadership and participation, essential to building a sense of community pride and ownership.

Finally, this project was successful in empowering local youth in Kuchuwa. Feedback from the community suggests that the youth were effectively engaged with the content, and there was a broad consensus that proactive community action to manage water and waste was necessary for future prosperity. Since the workshop, youth participants have organized themselves to become a chartered youth organization. They have met to elect officers (all officers participated in the workshop). They have done major clean ups in Kuchuwa (i.e. collecting and separating garbage; clearing roads with their brush cutters and chain saws). Their most recent clean-up day was on April 16 where they reached another village of Nechap on Tonoas Island. MAFA identified youth as a crucial factor in the project's success, noting that the Kuchuwa youth were enthusiastic and engaged, and were able to discuss sensitive cultural issues with the consent of their peers and elders. The Kuchuwa elders considered youth important for community renewal, particularly in dealing with contemporary issues such as education and climate change.

One of the key factors in this empowerment process was the involvement of two Chuukese researchers, Myjolyne Kim and Gonzaga Puas. They were crucial players in the MAFA project from conception to implementation, and during the workshop they were important Chuukese role models for the youth of Kuchuwa, demonstrating the benefits of higher education and the potential for youth leadership, as well as embodying MAFA's project philosophy of incorporating indigenous knowledge with western frameworks. Their participation contributed to a strong sense of community pride amongst the participants. This workshop not only gave Kuchuwa youth an opportunity for peer mentoring by Myjolyne and Gonzaga, but it also provided a forum for young people to become leaders amongst their peers, and we identified several individuals who showed particular promise. It is hoped that MAFA can continue to maintain a strong relationship with Kuchuwa and support these potential young leaders.

Appendix

1. Questionnaire responses

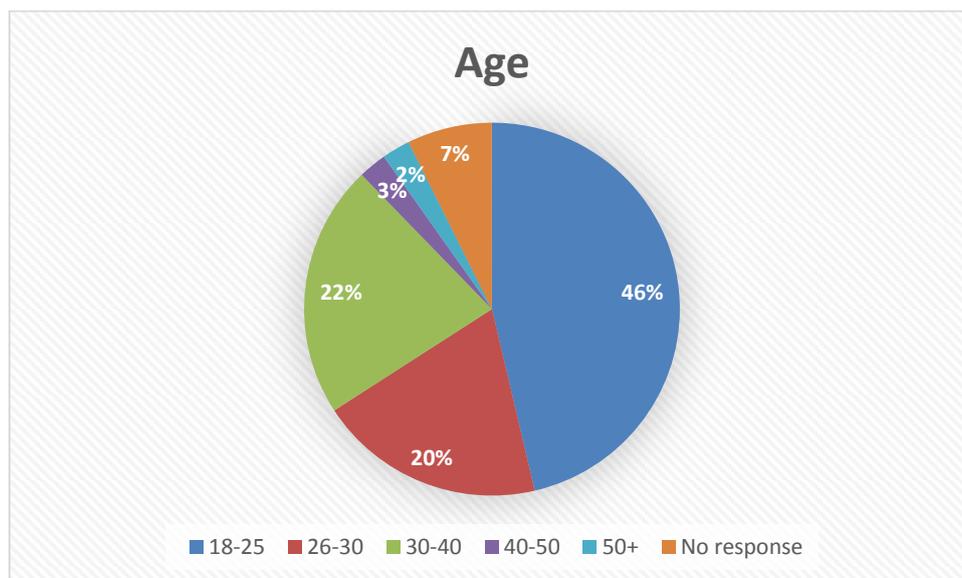
At the beginning of the workshop, each participant was given a questionnaire to complete. This questionnaire was based on other climate adaptation surveys funded by AusAID under its Community-based Climate Change Action Grants (CBCCAG) program.³ Written in English and Chuukese, this questionnaire is a valuable tool for further climate change research in the region. The results of the questionnaire are listed below. 41 questionnaires were completed and an estimated 81 members attended – this discrepancy can be explained by people attending only one day, and other non-youth groups who participated.

Part A: Background Information

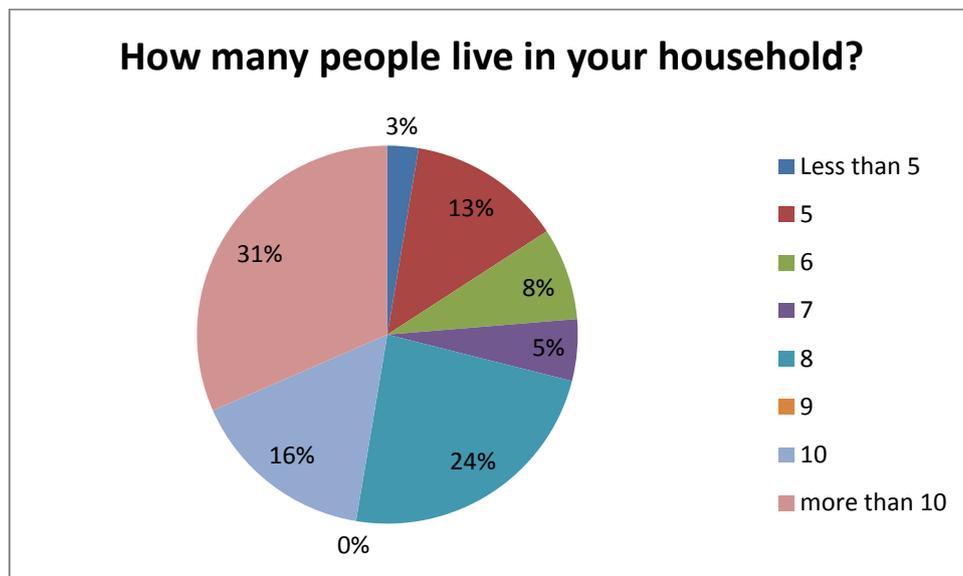
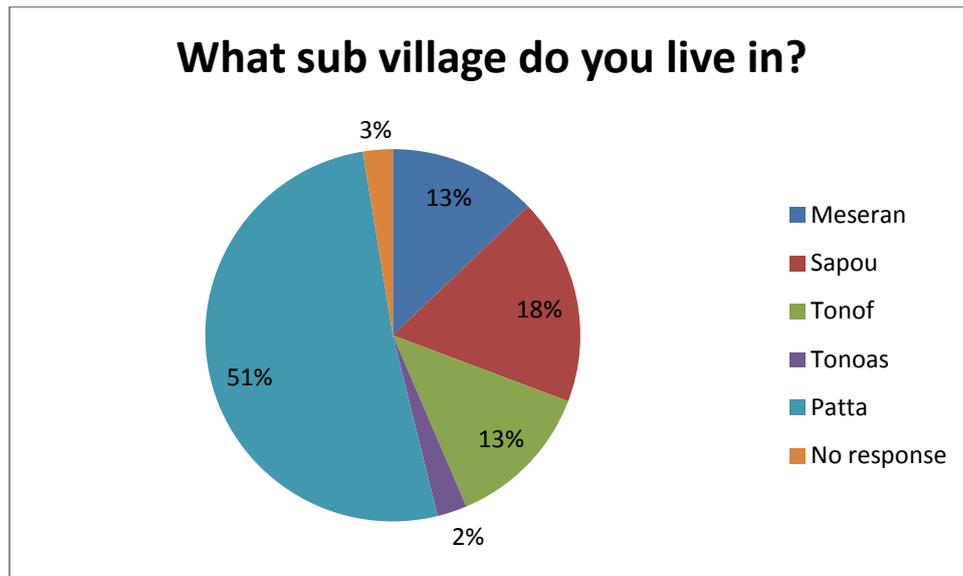
Although the workshop was publicized as a youth event, many more people from the village also attended. Rather than being exclusive, we allowed participants of all ages. The workshop was held in a communal house and the open setting allowed people to watch from outside and participate when they felt comfortable. This was especially important for the village elders who were able to supervise and participate in the workshop from the edges of the *wut* (communal house), offering unique insights to the youth, reinforcing our messages and legitimizing our presence.

Age and Gender

55% of respondents were male and 45% were female.

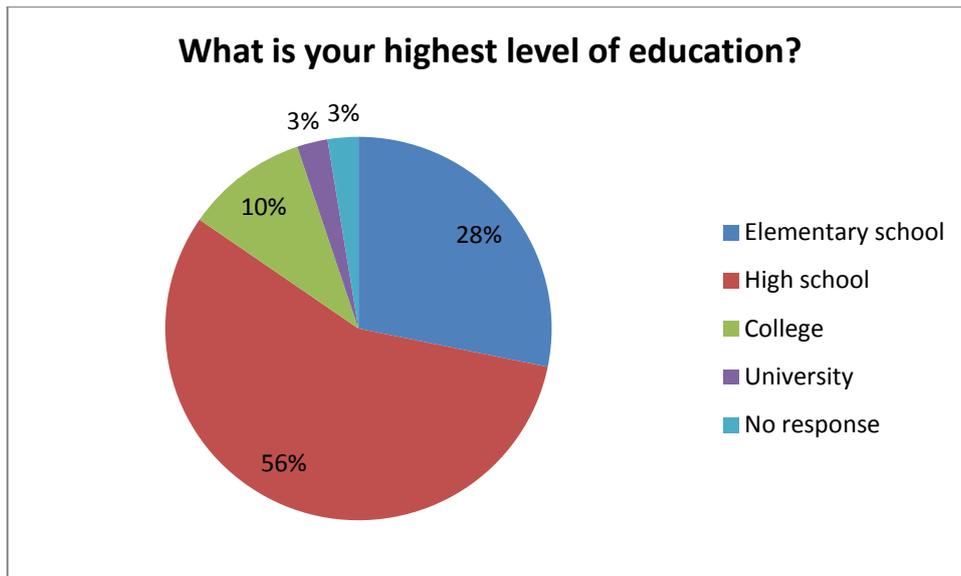


Household information



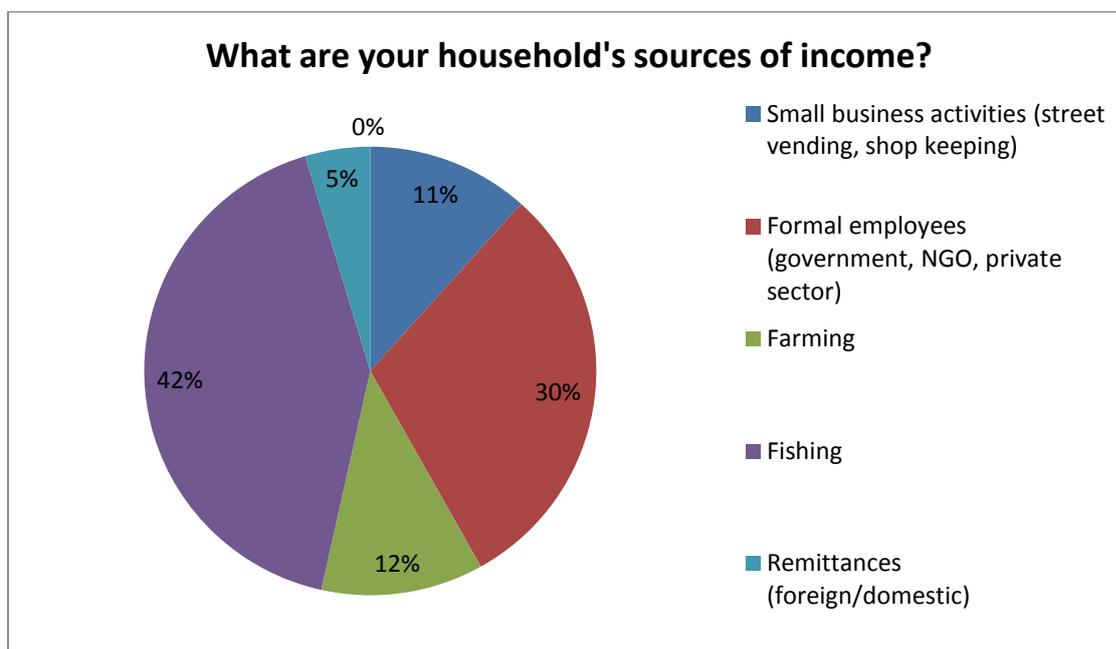
Education levels

The Department of Education in Chuuk state has recently implemented reforms to comply with national standards.⁴ This has been a controversial and divisive process amongst Chuukese communities. Kuchuwa's only public school was closed as a result of these reforms. Educational facilities are poor and Chuuk has the lowest standards of education in the Federated States of Micronesia.



Sources of Income

Fishing is a major sector of employment for the people of Kuchuwa. The use of dynamite fishing is prevalent there, although this was not raised by the community as it is a sensitive issue. The use of batteries for fishing torches was an important issue raised in discussion about waste (for example, one fisherman used 16 batteries a week, and locals were often unaware of the dangers posed by battery acid leaching). Many residents with government jobs travel by boat to the main island of Weno daily. It is a 30-60 minute trip each way depending on the weather, and gas is a very expensive but necessary expense for work and for shopping. These survey responses do not reflect the high level of remittances from Chuukese communities in Guam, Hawaii and the mainland US.



Part B: Understanding Climate Change

Before the workshop began, we asked participants what they thought climate change was. Their responses demonstrate that although the majority understood the concept broadly, few understood the principles behind global warming. For example, an understanding of El Nino and La Nina, which can have important impacts on water supplies in Micronesia, was very limited. This is despite 58% of respondents saying that they had learnt about climate change from another program, government agency or community group. Further questioning showed that some could elaborate on the potential impacts on their islands: when asked if they had experienced any changes in climate over the past 10 years, 54% answered yes, 24% no and 17% I don't know (and 5% no response).

Examples of answers written by participants:

- *Ekesiwinin nonomun Fonufan* (the way that the earth is changing)
- *Tumunun nimochun neni pwan nimochun konik* (to maintain the land for clean water and the environment)
- *Ekesiwin ren tumun konik me neni* (to take care of the water and our place)
- *Siwinin nonomun non fenuach* (the way we are in the land)
- *Ekesiwinin nonomun aramas* (changes in the way people live)

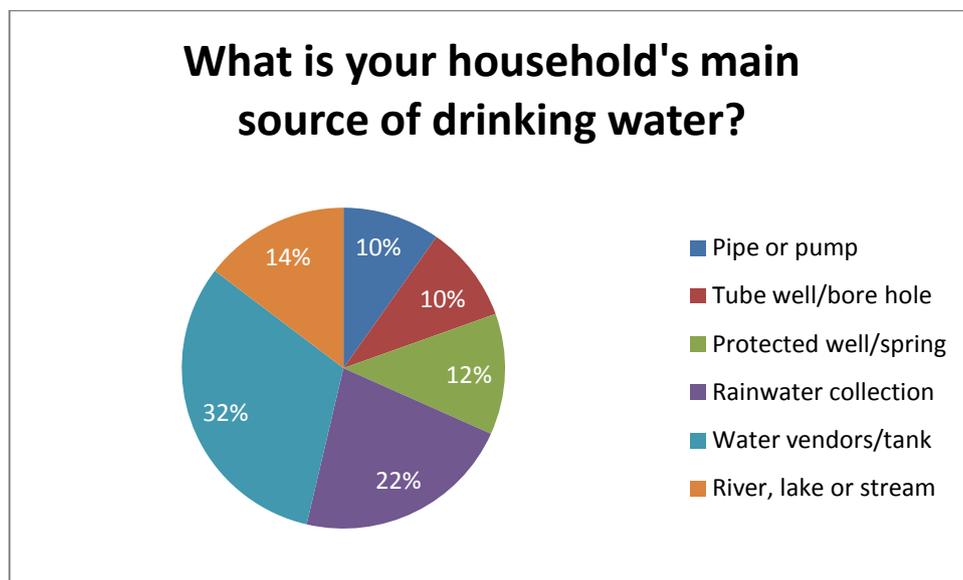
This workshop was important in starting a dialogue about climate change, as 56% of respondents said they had never talked to others at home, school or elsewhere about climate change.

Part C: Water Management

As the graph below highlights, Kuchuwa residents have several water sources that they rely on. Depending on the sub-village, Kuchuwa residents draw their water from wells (many of which were constructed during the Japanese colonial era) or natural water sources in the higher mountain valleys, such as springs and streams. Some villages have laid long narrow PVC pipes from the springs that flow unabated to each house. 51% of respondents said they spend up to 30 minutes collecting water each day. Although some of the elders could recall times when water mismanagement polluted the water sources, there was no apparent water management applied by most villages. Villages or households did not have any water

conservation plans, pipes were not tapped to conserve water use, and there was no village-coordinated effort to control water access or limit pollution up-stream.

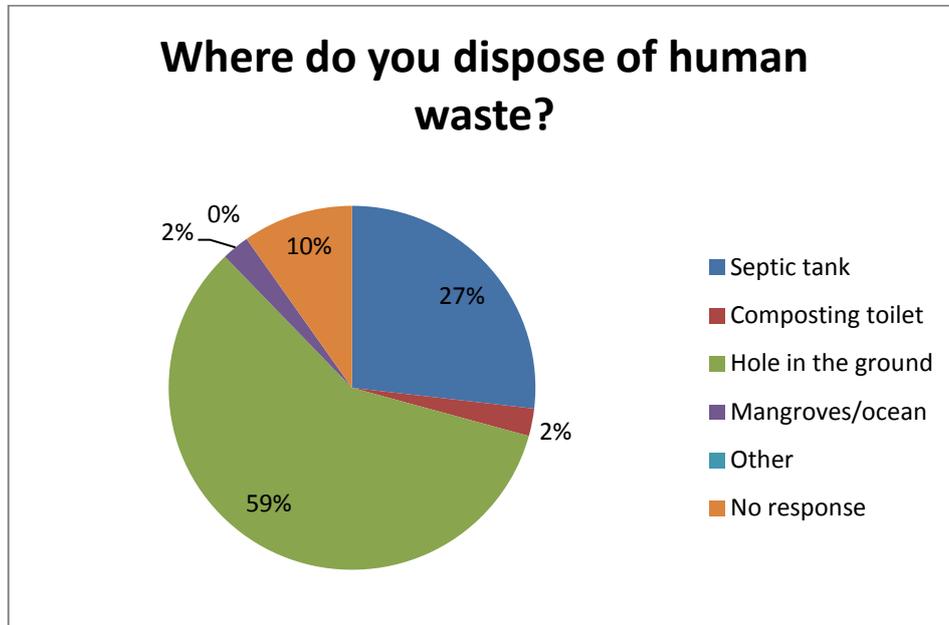
Many households have rainwater tanks, many of which are cement tanks constructed during the Japanese colonial era. Villagers were aware of how to maintain and clean tanks, however some were damaged by a recent landslide and no longer hold water. Some villagers prefer cement tanks because they are more sturdy and durable, and last longer. The cost of cement and plastic tanks is prohibitively expensive for most individual households in Kuchuwa. Few houses have adequate guttering to collect rainfall as well, nor a system to limit the initial run off which could contaminate water supplies with rust from the tin rooves.



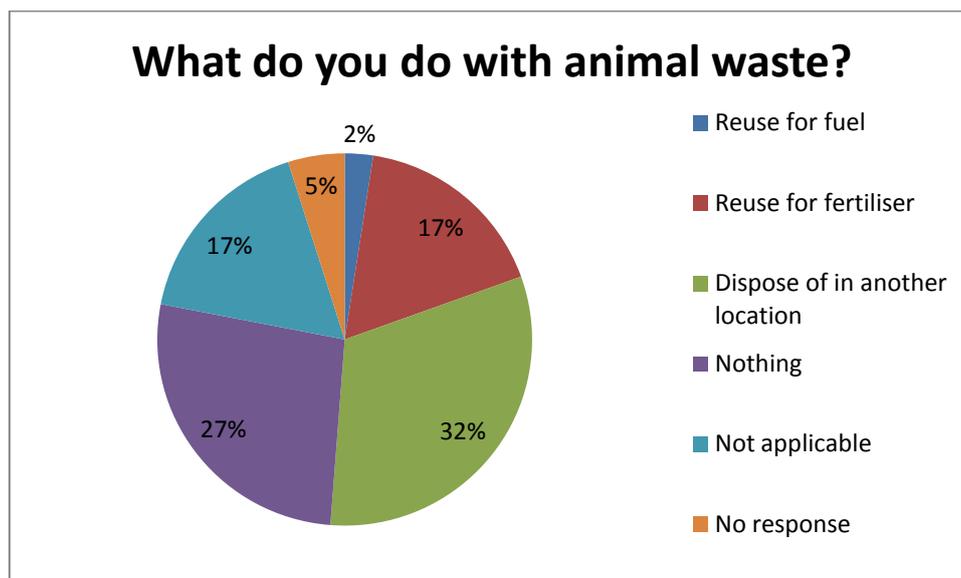
The threat of limited water supply is real in Chuuk. During our project Chuuk state was delivering water to communities suffering from drought, and soon after our departure the FSM declared a state of emergency due to drought conditions caused by El Nino. 61% of respondents answered that water from their main source had been unavailable for a day or longer over the past year. Many rely on their neighbours water tanks or streams as backups, but there are no communal water storage facilities. Many noted that if desperate, filtered fresh water would be purchased from Weno Island. The majority of respondents boiled their water before drinking but only 51% filtered it.

Part D: Waste Management

As shown in the graph below, the majority of Kuchuwa uses a hole in the ground or a septic tank to dispose of human waste. The use of mangroves as a garbage site likely discourages more locals from using it for ablutions.

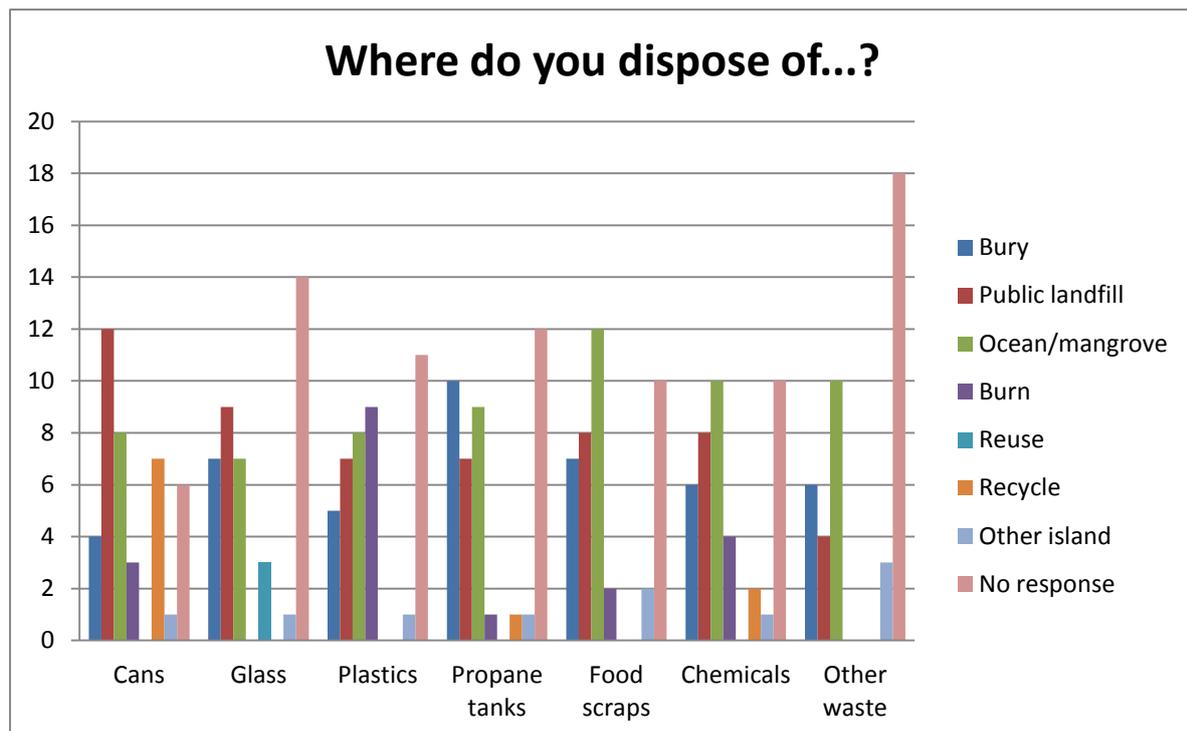


The use of animal waste for fertilizer is not as common as was expected. It was more common for farmers to use coconut husks to plant around their crops than animal waste. Similarly few Kuchuwans had a composting system in place for food scraps.



One of the most useful exercises of the workshop was getting participants to identify the different types of waste they produced and quantify how much they produce. As the graph

below shows, Kuchuwans dispose of non-human waste widely and in different areas. Few could quantify how much waste their household produced. There is no community plan or set garbage site for villages, no garbage bins or garbage collection service, no recycling facilities and no discernible pattern of waste distribution. Most trash is discarded according to the preferences of individuals or households. Few understood the potential dangers of their waste disposal practices, such as chemical toxins, soil leaching, water and air pollution.



When asked if waste management had changed for their household in the past three years, only 20% said it had improved. 49% by comparison said it had not changed or was worse.

Part E: Diseases

This final section was to see if waste and water management affect their own health. The majority of respondents practice good levels of hygiene, washing their hand after the toilet or before eating. Yet 37% acknowledged that they or their household had suffered from diarrhoea, worms, typhoid or eye infections in the last three months. This suggests water and waste management may be a contributing factor to disease in the community. Another unhealthy practice that was identified was the use of battery acid to tattoo. This practice is prevalent throughout Chuuk, and some participants in the workshop were unaware that battery acid was toxic to their bodies. Some were also unaware of the dangers of chemical

seepage into groundwater or root vegetables, and the dangers of burning or cooking with plastics.

2. Questionnaire

MAFA - KUCHUWA COMMUNITY PROJECT SURVEY

Kinisou ren omw awora om fansoun ren om anisikich ne amasowa taropwen ach ei workshop. Ei taropwe an MAFA-Kuchuwa Community Project epwe anisi MAFA an epwe weweti ifan an sarafen Kuchuwa weweti pekin tumunun konik me nimochun non nenier. Ei taropwe epwe pwan anisi MAFA an epwe riri ngeni Kuchuwa ren epwe napeno ach angang fengen non ekan ran are ier epwe eto. Masowen non ei taropwe epwe amasou epwe chok nom ren MAFA esap noo ngeni government are chon tungor repwe eaea masown ei taropwe. Ren omw amasowa ei taropwe ka ngeni MAFA mumutan an epwe eaea masowan ei taropwe ikka a makei an riport.

Ei taropwe emi kinikintiw non onou kinikin: seni itomw me irum, omw weweti ei metocch sikan era klaimet cheinch, tumunun konik, tumunun nimochun non neni non Kuchuwa, semwen me pekin eorani ren nengin me mwen. Kinisou chapur ren omw aninis.

Thank you for taking time to complete this important survey. This survey is part of the MAFA-Kuchuwa Community Project to help the organisers understand how your community manages their water and waste. Your participation in this survey will help us to identify the needs of your community in order to develop future collaborative projects. All your answers will remain confidential to the research team and your details will not be forwarded on to any other party. By returning this survey to the organisers, you consent to MAFA using your written responses in future publications, and if so, you will only be identified by age and gender.

This survey has the following 5 sections: Background information; understanding climate change; water management; waste management; disease.

Questions with an * are required questions. This survey should take no more than 30 minutes of your time. If you have any questions about this survey please talk to the workshop organisers or contact MAFA at microaustfriends@gmail.com.

PART A: BACKGROUND INFORMATION

*1.	En kemi fiti unusen an Kuchuwa ei youth workshop?	Are you participating in the MAFA-Kuchuwa youth workshop?		
	Ewer	Yes		<input type="checkbox"/>
	Apw	No		<input type="checkbox"/>
2.	Ifa Itomw	What is your name?		

*3.	En	What is your gender?	
	Aat/Mwan	Male	<input type="checkbox"/>
	Nengin/Fefin	Female	<input type="checkbox"/>
*4.	Ka ier fite	How old are you?	
5.	Meni kinikinen Kuchuwa ka eto seni	What sub-village do you live in?	
6.	Fitemon chochon non neni0mw	How many people live in your household?	
7.	Meni sokun sukun ka awesi (chekini ew ekena box fan)	What is your highest level of education?	
		Elementary school	<input type="checkbox"/>
		High School	<input type="checkbox"/>
		College	<input type="checkbox"/>
		University	<input type="checkbox"/>
	Other (please specify)		
8.	Ian monian famini e feito me ia	What are your household's sources of income? (tick one or more)	
		Small business activities (street vending, shop keeping)	<input type="checkbox"/>
		Formal employees (government, NGO, private sector)	<input type="checkbox"/>
		Farming	<input type="checkbox"/>
		Fishing	<input type="checkbox"/>
		Remittances (foreign/domestic)	<input type="checkbox"/>
	Other (please specify)		

PART B: UNDERSTANDING CLIMATE CHANGE

9.	Met pwisin omw weweti ei kapas sa era klaimet cheinch (climate change). Maketiw omw weweiti non ei box fan.	What does climate change mean to you?	

10.	Ika ka fen sine met wewen klaimet cheinch iwe ke rong seni kofemen ika pwan ew sokun prokram?	Have you learnt about climate change from any other program, government agency or community group? If so who, and when?	
	Ewer	Yes	<input type="checkbox"/>
	Apw	No	<input type="checkbox"/>
11.	Non ekewe ier a no met omw nenengeni nge mi kasiwinin non kuchuwa ren asepwen, ut, ika pwas?	Over the past 10 years have you experienced any changes in the climate (such as different times of rain, changes in temperature, drought, etc.)?	
	Ewer	Yes	<input type="checkbox"/>
	Apw	No	<input type="checkbox"/>
	Use sine	I don't know	<input type="checkbox"/>
12.	Ika pwe en ka fan sinei met porousan klaimet cheinch ka fan aporousa ngeni omw sukun ika ome famini me chiechiomw?	Have you ever talked to others at home, or at school or elsewhere about climate change?	
	Ewer	Yes	<input type="checkbox"/>
	Apw	No	<input type="checkbox"/>

PART C: WATER MANAGEMENT

13.	Non neniomw e ito me ia koniken un. Cheki ew ekna box fan.	What is your household's main source of drinking water?	
	Paip are pomw	Pipe or pump	<input type="checkbox"/>
	Koniken non kofemen	Public tap	<input type="checkbox"/>
	Ito	Tube well/ bore hole	<input type="checkbox"/>
	Konik e eto me fan puun	Protected well/spring	<input type="checkbox"/>
	Ut eto seni fan nang	Rainwater collection	<input type="checkbox"/>
	Konik e nomw non rume ika plastic	Bottled water	<input type="checkbox"/>
	Tangik	Water vendors/tank	<input type="checkbox"/>
	Pupu	River, lake or stream	<input type="checkbox"/>
	Pwan pacheta ika e mi or ew sokun seni ekan asan	Other (please specify)	
14.	Ia taman an chon non neniomw re ufuf konik seni ekis	How much time does your household spend each day to collect water?	
	Inik minich	Up to 30 minutes	<input type="checkbox"/>
	Ew awa	30 – 60 minutes	<input type="checkbox"/>
	Nap seni ew awa	More than 60 minutes	<input type="checkbox"/>
	Use sinei	I don't know	<input type="checkbox"/>
15.	En kekan apwich unumom konik me mesemwan omw kopwe un	Do you boil water before drinking it?	
	Ewer	Yes	<input type="checkbox"/>
	Apw	No	<input type="checkbox"/>
16.	Mi kan filter unumemi konikin uun	Do you filter water before drinking it?	
	Ewer	Yes	<input type="checkbox"/>
	Apw	No	<input type="checkbox"/>

17.	Non ekew ier ika meram emi or fansoun ese chuan no wor konik ren un ika amot mongo.	Over the past year, has water from your main source been unavailable for a day or longer?		
	Ewer	Yes		<input type="checkbox"/>
	Apw	No		<input type="checkbox"/>
	Use sinei	I don't know		<input type="checkbox"/>
18.	Ika a or pwas ia ka kut ia unumom konik. Maketiw non ena por fan.	When there is drought, where do you get your water?		
19.	Emi or nenian om anomu ika isois nenien konik ren un me amot mongo. Cheki ewe ken box fan.	Do you store water? If so, where?		
	Ewer	Yes		<input type="checkbox"/>
	Apw	No		<input type="checkbox"/>
20.	Non ukukin ewe unungat ier emi or kaswinin pekin konik non neniomw	In the past three years, has access to water changed for your household?		
	Ewer a eochuna	Yes water access is better now		<input type="checkbox"/>
	Ese eor kasiwinin	No change		<input type="checkbox"/>
	Osen efan ngaweno	Yes water access is worse now		<input type="checkbox"/>
	Use sinei	I don't know		<input type="checkbox"/>

PART D: WASTE MANAGEMENT

21.	Met sokun pekin pincho ke kan ea	Where do you dispose of human waste?		
	Tankun fan pwen	Septic tank		<input type="checkbox"/>
	Non nekian forin koiasi	Composting toilet		<input type="checkbox"/>
	Non imwan bencho	Hole in the ground		<input type="checkbox"/>
	Nein chia me neset	Mangroves/ocean		<input type="checkbox"/>
	Pwan ekkoch	Other (please specify)		
22.	Non nimengawan maan ren pik me konak met ke kan for ngeni	What do you do with animal waste?		
	Eaea ngeni ren amuchin eaf	Reuse for fuel		<input type="checkbox"/>
	Eaea ren pekin fertelaiser	Reuse for fertiliser		<input type="checkbox"/>
	Aturono ese pwan nifinifin	Dispose of in another location		<input type="checkbox"/>
	Ese eor me I for ngeni	Nothing		<input type="checkbox"/>
	Ese or nai man	Not applicable		<input type="checkbox"/>
23.	Omw eurueur epwe fite paikin kepich eto seni non neniomw non ew wik. Maketiw eom eureur non ei por fan.	How many bags of non-human waste does your household produce per week?		

24.	Ian ke kan kepichni	Where do you dispose of?	Bury	Public landfill	Ocean/mangrove	Burn	Reuse	Recycle	Other Island
	Pon tin	Cans	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Kinas	Glass	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Pnestik	Plastics	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Propein stof	Propane tanks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Nusun amot me mongo	Food scraps	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Oil, bateri, pon serasko	Chemicals (oil, batteries, Clorox etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pwan ekkoch	Other waste	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
25.	Ika ke ekeiek sefen non ukukin unungat ier tori ikenai omw kepich non neniomw a;				In the past three years, has waste disposal/management changed for your household?				
	Eochuna				Yes it is better now			<input type="checkbox"/>	<input type="checkbox"/>
	usun we chek				No change			<input type="checkbox"/>	<input type="checkbox"/>
	Ngaweno				Yes it is worse now			<input type="checkbox"/>	<input type="checkbox"/>
	Ese fat ngeni ei				I don't know			<input type="checkbox"/>	<input type="checkbox"/>

PART E: DISEASES

26.	Non neniomw emi or omw famini a tori ekei sokun semwen non eke unungat meram ren feiseni, semwenin mas		Did you or any of your household members have any of the following diseases in the last three months: diarrhoea, worms, typhoid, eye infection?					
	Ewer		Yes			<input type="checkbox"/>	<input type="checkbox"/>	
	Apw		No			<input type="checkbox"/>	<input type="checkbox"/>	
	Use sinei		I don't know			<input type="checkbox"/>	<input type="checkbox"/>	
27.	Omwi kan nimeti poum mwirin om bencho me mwan om kepwe ne mongo.		Do you wash your hands after using the toilet or before eating?					
	Iteitan		Always			<input type="checkbox"/>	<input type="checkbox"/>	
	fan ekkoch		Sometimes			<input type="checkbox"/>	<input type="checkbox"/>	
	Ese pwan ian		Rarely			<input type="checkbox"/>	<input type="checkbox"/>	
	use		Never			<input type="checkbox"/>	<input type="checkbox"/>	

END OF SURVEY. THANK YOU!

3. Photographs



Image 1: Youth participants mapping the water and waste sites in their village during the workshop.



Image 2: MAFA member Myjolyne Kim discussing the impacts of climate change during the youth workshop



Image 3: MAFA member Zag Puas demonstrating how to make a ‘rocket stove’ to reduce the consumption of disposable propane bottles



Image 4: MAFA member Manuel Rauchholz answering questions during a break in the workshop



Image 5: Female youth participants from Kuchuwa



Image 6: Myjolyne Kim with some of the village elders



Images 7 and 8: Group presentations during the final day of the workshop



4. Media releases

Public flyer



Micronesian & Australian Friends Association

PACE-NET PLUS
PACIFIC EUROPE NETWORK FOR SCIENCE, TECHNOLOGY AND INNOVATION

Australian National University

RUPRECHT-KARLS-UNIVERSITÄT HEIDELBERG

MAFA-KUCHUWA COMMUNITY PROJECT: INDIGENOUS YOUTH RESPONSES TO WATER AND WASTE MANAGEMENT

Who is MAFA?

The Micronesian and Australian Friends Association (MAFA) is a student-led group at the Australian National University comprised of students, staff and community members living in Australia with an interest or background in greater Micronesia. Our mission is to promote knowledge of the greater Micronesian region, celebrate its diverse customs and values, and encourage communication and cultural exchange between Micronesia and Australia. The MAFA research team in Chuuk will be Gonzaga Puas, Myjolyne Kim, Dr Nicholas Halter (Australia) and Dr Manuel Rauchholz (Germany).

What is the Kuchuwa Community Project?

The Kuchuwa Community Project is a European-funded research project to determine how Chuukese youth can respond and adapt to climate change by managing their water and waste. MAFA is planning to meet with local youth and community leaders in Kuchuwa to discuss the effects of climate change on their island and develop strategies for building resilience within the community.

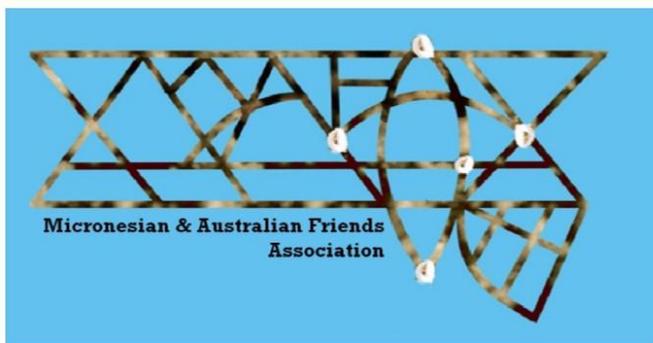
We will be hosting a three day workshop in Kuchuwa open to the local youth, who will work in groups to investigate methods and practices that their community can implement to adapt to climate change. The focus of this workshop will be on water and waste management. The MAFA research team will only play a supervisory role in this workshop – we are interested in creating an open forum for local youth to discuss climate change, and giving them an opportunity to discuss strategies for adapting to climate change that draw on traditional knowledge and practices.

The aim of this pilot project is to assess the effectiveness of community-led adaptation strategies for climate change that incorporates indigenous Micronesian knowledge and Western frameworks and technologies. It is our hope that this project will inspire and empower local youth in Kuchuwa, and if successful, be applied to other Micronesian villages and communities to develop their own toolkits for climate action.

How can I participate?

The workshop is open to all Kuchuwa youth and participation is free. Other members of the community are able to meet with the MAFA research team in Weno and Tonoas before the workshop. On the final day of the workshop there will be an open public forum for the youth participants and MAFA research team to present their findings to the entire Kuchuwa community.

You can also contact us by email: microaustfriends@gmail.com or on facebook: [facebook.com/ANU.MAFA](https://www.facebook.com/ANU.MAFA) or by calling us on +61 420 427 572.



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MAFA-KUCHUWA COMMUNITY PROJECT: INDIGENOUS YOUTH RESPONSES TO WATER AND WASTE MANAGEMENT

MAFA

Micronesia-Australia Friendship Association (MAFA) ew mwich an chon sukun me chon angang non Australian National University (ANU) me pwan chon Australia re pwapwaeti repe kaeo eoranian me uruon Micronesia. MAFA e afefetei porousan Micronesia non Australia. Iei itan ekkei tipwen an ei MAFA tim (team) epwe tori Kuchuwa:

Zag Pwas (MAFA President) Chuuk, Myjolyynn Kim (PhD Candidate) Chuuk, Dr. Nicholas Halter, Australia, Dr. Manuel Rauchholz, Germany.

Kuchuwa Community

Kuchuwa kamiuniti (Community) procheck (Project) e eto seni Europe ren pekin climate change. MAFA e mochen mwich ngeni samonun me serafon Kuchuwa ren repwe anagnag fengen non pekin apetin afeingawan climate change ren non pekin konik me tumunun nimochun non Kuchuwa.

Workshop

MAFA epe aora unungat (3) ran workshop ngeni serafon Kuchuwa ren epe kuta met sokun ekiek ika angang chon Kuchuwa ra tongeni eaea ren pekin climate change. Ei workshop epe nengeni pekin konik me nonomon nimachun fanu. Ei workshop epe aora ngeni serafon non Kuchuwa ar repwe pwisin akeiki met sokkun mettoch ra tongeni eaea are repwe ekisatiw afeingawen ei mettoch itan climate change. Foforin ika ekiekin nom ren nimoch me konik pach fengen me pekin ekiekin teknolochy (technology) ikenai epe kaor ren epwe emecheresi ekiekin tumunun fonu akaewan koniken un ren climate change.

MAFA a aneanei pwe masowan ei workshop non Kuchuwa epwe pwan anisi serafon fanuan non Chuuk me Micronesia ren foforin me amonetan pekin climate change akaewan ren pwisin an serafon tumunun fanu seni nomw me pach ngeni met sa paro (borrow) seni pekin teknolochi fan itan climate change.

Ei workshop emi suk ngeni serafon me chon Kuchuwa meinisin. MAFA epwe era met pwisin kunaan no Kuchuwa ren an ei project me mesewman ei workshop epwene wes. Ika mi wor kapas eis mwan ei workshop kinisou chuto rech ika sa nomw Tonowas.

Ika fan churi MAFA on ei email: microaustfriends@gmail.com

Ika fan pwan on facebook: [facebook.com/ANU.MAFA](https://www.facebook.com/ANU.MAFA) or by calling us on +61 420 427 572.

Kinisou Chapur.

MAFA - KUCHUWA COMMUNITY PROJECT

By Dr. Nicholas Halter and the MAFA team

February 8, 2016

Chuuk, FSM—The Micronesian and Australian Friends Association (MAFA) has recently completed a successful research project into indigenous responses to climate change in Chuuk last month. The collaboration between staff and students of the Australian National University and Heidelberg University culminated in a youth workshop held in Kuchuwa village on Tomoas Island from the 22-24 January. Funded by a European PACE-Net grant for water and waste management, MAFA's goal was to assess the community's water and waste needs, and empower the youth to develop community strategies for climate change adaptation.

MAFA's president, Zag Puaas, who was born in Lakinioch and has lived in Australia for many years, was pleased to be able to work at a grassroots level with the Kuchuwa community, many of whom are still struggling to repair their homes in the wake

of typhoon Maysak. One of the strengths of the project, he said, was identifying new young leaders in the community. He was aided by three other academics, including Myjolyne Kim, a Chuukese PhD student completing her studies in Australia. Kim explained that the aim of the project was to facilitate youth participation and innovation, rather than instruct them what to do. On the final day of the workshop, the youth of Kuchuwa gave presentations to the wider community and made commitments to ongoing local projects, which MAFA plans to follow up on in the next few months. MAFA would like to thank the Kuchuwa community for their support, including Tomoas' political and traditional leaders, the Mayor of Kuchuwa Douglas Reselap, and the FSM Ambassador for Japan John Fritz.

For more information about the project and MAFA, please email microsustfriends@gmail.com or visit facebook.com/ANU-MAFA or pasifika.anu.edu.au/micronesian-and-australian-friends-association-mafa.

...Lost Village

Continued from page 9

clan in the area during prehistoric times. This is the reason that the mountain was named "Dolen Lepen," literally 'Mountain of Lepen (Moar).' According to Mr. Elias, who belongs to the Sounkawad clan himself, Senipehn was a large autonomous area in the central Madolenihmw ruled by Lepen Moar prior to the rise of the Saudeleur dynasty (archaeologically dated from AD 1200 to AD 1500-1600). This clan is known to have based in the interior of Pohnpei in such areas as Nankawad and Nansokele in Nett and Salapwuk and Nanmeir in Kitti during prehistoric times. According to Pohnpeian oral traditions, during Isokelekel's invasion, Lepen Moar helped overthrow the Saudeleur dynasty, allying with Isokelekel's Dipwinpahmmei clan. Due to this, the chiefly title of Lepen Moar, which is still bestowed upon a senior member of the Sounkawad clan in the region, holds special significance in Madolenihmw today.

The archaeological features the

The members would like to thank all the officials and local people supported their project, especially Mr. Bersin Martin and Mr. Benard Martin, who kindly assisted this research as guide and host of home stays. They have submitted preliminary reports on the results of their surveys to the FSM and Pohnpei Historic Preservation Offices every year and hope the results of their surveys will contribute to the study of Pohnpei's history.

The preface of their report reads as follows: "This research all started with a pure motive to know the unknown, such as a ruin that has never been discovered. Through the process of this research, and as we contemplated about the meaning of 'exploration,' this project began to possess the social and moral meaning for us. We wish that our efforts and the findings after all the tremendous work will lead to something that improves the current situation in Micronesia."

The members are planning to return to Senipehn for additional research for two weeks from late February, and

<http://pacificinstitute.anu.edu.au/news-events/news/1765/mafa-kuchuwa-community-project>

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Zag Puas talking to Kuchuwas locals about how to design a 'rocket stove'

Mafa-Kuchuwa Community Project

9 February 2016

The Micronesian and Australian Friends Association (MAFA) has recently completed a successful research project into indigenous responses to climate change in Chuuk in the Federated States of Micronesia. The collaboration between staff and students of the Australian National University and Heidelberg University culminated in a youth workshop held in Kuchuwa village on Tonoas Island from the 22-24 January. Funded by a European PACE-Net Plus grant for water and waste management, MAFA's goal was to assess the community's water and waste needs, and empower the youth to develop community strategies for climate change adaptation.

MAFA's president, Zag Puas, who was born in Lekinioch and has lived in Australia for many years, was pleased to be able to work at a grassroots level with the Kuchuwa community, many of whom are still struggling to repair their homes in the wake of typhoon Maysak. One of the strengths of the project, he said, was identifying new young leaders in the community. He was aided by Nicholas Halter and Myjolyne Kim, also from the ANU, as well as a European partner from Heidelberg University. Kim, who is undertaking her PhD research in Chuuk, explained that the aim of the project was to facilitate youth participation and innovation, rather than instruct them what to do. On the final day of the workshop, the youth of Kuchuwa gave presentations to the wider community and made commitments to ongoing local projects, which MAFA plans to follow up on in the next few months. MAFA would like to thank the Kuchuwa community for their support, including Tonoas' political and traditional leaders, the Mayor of Kuchuwa Douglas Reselap, and the FSM Ambassador for Japan John Fritz. A final report will be delivered at the PACE-Net Plus conference in Fiji at the end of June 2016.

For more information about the project and MAFA, please email micoaustfriends@gmail.com or visit facebook.com/ANU.MAFA or pasifika.anu.edu.au/micronesian-and-australian-friends-association-mafa.

Tags: [Pasifika](#), [MAFA](#), [Community Project](#)

References

¹ Federated States of Micronesia Strategic Development Plan 2004-2023. The Next 20 Years: Achieving Economic Growth and Self-Reliance (2004), accessed at <http://www.sprep.org/att/IRC/eCOPIES/Countries/FSM/21.pdf>

² Live & Learn Food Security Leadership Manual; PLAN International and Save the Children, 'Child-Centred Community-Based Climate Change Adaptation in the Philippines: Guidance document for Local-level indicators'; Engineers Without Borders 'Water for Life' activity; CARE's 'Guidelines for Gender Sensitive Training' and 'Making it Count' report, <https://goo.gl/fOTrog>

³ Ibid.

⁴ See <http://www.fsmed.fm/index.php/documents/ndoe-documents?view=download&fileId=872>. For more on the Chuuk Advisory Group on Education Reform, see <http://www.pitiviti.org/chuuk/members.php> and <http://goo.gl/HH1VX>.