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## Communication, Collaboration, and Advocacy

A Study of Participatory Action Research to Address Climate Change in the Pacific

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# Communication, Collaboration, and Advocacy: A Study of Participatory Action Research to Address Climate Change in the Pacific

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*Abstract: The science of climate change is a complex issue that presents challenges for regions, nations, local governments, and communities. This article describes a participatory action research project designed to develop new knowledge of how community members react to climate change and communication's role in strengthening local resilience. The project has grown organically from an initial study, undertaken by one researcher to examine communication of climate change at the local level, into an intersectoral, interagency study. Partners in the study are connected by one vision: to facilitate grassroots, upward planning of sustainable climate change adaptation led by local end-users, and to amplify the Pacific Island Countries perspective of climate change to the world. The study's theoretical framework draws upon literature from international development, communication, social science, and public policy. A qualitative case study examines whether the use of a reflexive, communicative approach can facilitate cross-sector interaction between climate scientists, policy makers, and local end-users to plan, implement and evaluate sustainable approaches to climate change. The case provides an example of applying participatory action research (PAR) as a way to communicate complex climate science by using specific context and evidence-based local experiences. The study demonstrates how the use of participatory action research has fostered the creation of horizontal and vertical multi-sector networks that have improved communication of climate science, and collaboration amongst all partners-including local end-users-and strengthened local advocacy in climate-related policy and planning decisions for the Pacific. This study demonstrates the potential of PAR as a method for reducing disconnect between science-policy-local interaction, and to build local and global intersectoral collaboration. Evidence-based research shows the linkages between theory and practice for organizations tasked with building community resilience. This innovative synthesis can aid in building PAR-led climate change adaptation across prevention, preparation and adaptation activities for potential climate related hazards. Findings from this study are relevant to communities building resilience.*

*Keywords: Environmental Policy, Climate Change, Sustainability, Communication, South Pacific Island States, Participatory Action Research*

## Introduction

The science of climate change is a complex issue that presents challenges for regions, nations, local governments, and communities. This article describes participatory action research undertaken to support the Pacific Island Countries efforts to address the challenges of climate change at both local (micro) and global (macro) levels. By commencing with a review of the global framework for action against climate-related hazards, this article identifies a need to bridge the disconnect between science, policy and local level action in disaster risk reduction and climate change adaptation. A review of international development, communication, social planning and political science literature provides the study's conceptual framework, followed by a description of small island developing states (SIDS) exposure to climate change and disaster risks. A qualitative case, undertaken in the Pacific Island Countries, is the study's specific context. The study commenced as an examination of local-level methods to

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communicate climate change, and has expanded to become a unique intersectoral and interagency network of researchers and practitioners. All partners are committed to one vision: to facilitate grassroots, upward planning of sustainable climate change adaptation strategies, and to amplify the Pacific Island Countries perspective of climate change to the world.

## Context

A description of the Pacific region proceeds a review of climate change regulatory frameworks developed at global and Pacific regional level. Challenges faced in the translation of climate science to policy and then to local level action, are introduced with a description of how this study differs from previous approaches to addressing climate change in the Pacific region. The University of the South Pacific's (USP)'s role in supporting the Pacific delegation at the annual global summit on climate change completes an overview of this study's context.

### *Pacific Small Island Developing States Response to Climate Change and Disaster Risk*

The Small Island Developing States (SIDS) comprises fifty-two small countries and territories in the tropics and low-latitude sub-tropics (UNESCO 2015). Although there are differences within the group regarding economic data and geographical size, their level of sustainable development is similar (UN-OHRLLS 2011). They have formed a relatively cohesive group for addressing environmental issues such as climate change; with sea level rise arguably the most certain and potentially devastating climate change impact (Kelman and West 2009). In the Pacific region, Tuvalu, Tonga, Kiribati and the Marshall Islands anticipate losing significant amounts of land due to sea level rise. Increasing rates of rural-urban migration have resulted in expanding peri-urban areas and informal settlements around cities. This creates a further negative influence on climate change resilience.

In recognition of these challenges, the Pacific Islands became the first region in the world to develop a single overarching *Framework for Resilient Development in the Pacific* (FRDP), ratified in September 2015. To date there is limited evidence of local-level *participation and implementation* (SPC 2015; IPCC 2014a, 876). Challenges facing the Pacific Island Countries climate change leaders include how to communicate climate science to their local communities (and the wider public in general), in ways that motivate action at both local and international levels. This problem is not unique to the Pacific islands, as climate change and disaster management literature reflect increasing recognition that planning for climate change will not be effective without community participation. A further challenge is to enhance public participation to address climate-related hazards (Gaillard 2010; Twigg 2007; UNISDR 2009, 2014).

A sense of urgency is noted in the United Nations Office for Disaster Risk Reduction (UNISDR) 2014 warning that recent achievements of their Hyogo Framework for Action (HFA1) largely remain at national, policy development levels. UNISDR findings indicate an *urgent* need to increase local action in building community resilience to climate-related impacts (UNISDR 2009, 2014). Building on global achievements in disaster risk reduction policy development, The Sendai Framework for Disaster Risk Reduction 2015–2030, aims to increase implementation of integrated measures that prevent and reduce vulnerability to disaster, increase preparedness, and strengthen resilience. Targets set within the Sendai Agreement aim to bolster the capacity of developing countries (UNISDR 2016).

### ***The University of the South Pacific's Support for Pacific Action against Climate Change***

The United Nations Framework Convention on Climate Change (UNFCCC) is an international environment treaty which provides a framework “for international cooperation to combat climate change by limiting average global temperature increases and the resulting climate change, and coping with impacts” (UNFCCC 2015). The Conference of Parties (COP) is the governing body of the Convention and meets each year. The Pacific Centre for Environment and Sustainable Development (PaCE-SD) at The University of the South Pacific (USP), has been supporting the Pacific delegations at COP meetings since 2012. Each year USP students and staff attend the annual COP Convention as part of the Pacific delegation. Five students and two staff attend the Convention. A second team based in Suva, Fiji, provides backstopping services (data collection, document analysis, media liaison) to the offshore team and government delegates.

Since 2015, RMIT University and USP have combined to prepare the students for their roles in COP Conventions, using a participatory action research methodology to co-design training on climate change leadership, negotiation, advocacy, capacity building, and media and communication. Participants included staff from NGOs/CSOs with bases in the Pacific. These included Pasifika Indigenous Network, Pacific Islands Climate Action Network, 350 Pacific, Foundation of the Peoples of the South Pacific, USP Journalism School, local and regional media and CROP (Council of Regional Organizations in the Pacific) agencies also participate (RMIT news 2015) (Table 2).

In a win for developing countries and small island developing states (SIDS), the UNFCCC Conference of the Parties (COP 21, Paris, 2015), established a global goal to enhance adaptive capacity, strengthen resilience and reduce vulnerability to climate change in developing countries and small island states (UNFCCC 2015). Our study aims to contribute by assisting, and learning from, our Pacific Island neighbors as they endeavor to achieve COP 21's goal, implement the Pacific's *Strategy for Climate and Disaster Resilient Development* (SPC 2015), and highlight the impacts of climate change on their region to the world.

### ***Science-Policy-Local Interface on Climate-Related Challenges***

The science of climate change is a complex issue that has proven difficult to communicate to non-expert audiences. The Intergovernmental Panel on climate change (IPCC), Assessment Reports (ARs) are regarded as important and authoritative publications on a global scale that summarize the state of knowledge about climate science. However, there is evidence that the IPCC reports do not communicate in a manner that is easily understood or adapted by local-level decision makers (Howarth and Painter 2016; Cash et al. 2002). In their recent study, the authors find that complex scientific language used in IPCC reports “is perceived as a significant shortcoming when engaging with audiences such as local policymakers, local businesses, councils, schools, community groups, stakeholders, members of the public, and internal staff” (2016, 9).

Howarth and Painter (2016) contend that the IPCC continues to adopt an information deficit model, or what Paulo Freire termed the ‘banking model’ of education (Freire 1970). What these two linear methods of communication have in common is a belief that “depositing” information into passive audiences will result in learning, understanding and, ultimately behavioral change. In both methods, power is in the hands of the “banker,” or expert, and it is assumed that imparting this expert knowledge is sufficient to inform decision-making (policy). In direct opposition to this view, climate change, development, and disaster management literature reflect increasing recognition that adaptation policies will not be effective without local participation; yet the challenge of how to bridge the disconnect between science-policy and local action remains poorly articulated (Gaillard 2010; Twigg 2007; UNISDR 2009, 2014a).

Noting that the IPCC considers its primary target audiences to be governments and policymakers at all levels, Howarth and Painter (2016) contend that other sectors, particularly

local-end users, have been neglected. Their study concludes that the IPCC reports are not widely used to communicate local impacts and dimensions of climate change, nor to directly inform local level decision-making. Their recommendation that climate scientists engage more with the local environment within which they reside and work resonates with our study (Howarth and Painter 2016). This study differs from previous interventions that recommend top-down, regional, policy-driven approaches to address human and financial capacity-gaps (Lap 2011; German Federal Ministry for Economic Cooperation and Development 2016). Participatory action research is used to connect grassroots knowledge from local community leaders, with climate science and policy development at local, national, regional and international levels. The study builds on earlier studies by Jon Barnett (2001), who recognized the need to accommodate uncertainty and social learning “to enhance the resilience of whole island social-ecological systems” (Barnett 2001, 1).

## Theoretical Framework

As developing nations and territories situated in the Pacific are the context for this study, it is appropriate to situate this research within the field of postcolonial international development studies.

### *International Development*

Leading development scholars argue that the Anglo-American conceptualization of development is based on the premise of the “global south,” or undeveloped states, as a homogenous group who had in common their backwardness and underdevelopment (Escobar 1995, Manyozo 2012, Servaes 2008). This neo-imperialist discourse proposes that development is not the end itself, but rather a means for achieving Western modernity (Manyozo 2012, 11). Development communication emerged in the 1960’s as “a postcolonial discourse and practice...to recover development discourse from neo-imperialist assumptions that the rest of the world seeks to become like the West” (Manyozo 2012, 11). Manyozo describes two approaches toward development communication: “the development theory approach, focused on initiatives located in agricultural or rural development; and the communication theory approach with an interest in how media and communication can impact governance, policy, democracy and livelihoods” (2012, 49). This study, situated within Manyozo’s communication theory approach, focuses on development communication built on participation as espoused by Paulo Freire, with emphasis on social challenges that have as much relevance to the first world as to developing nation states (Freire 1970).

Recognizing that human development involves a holistic approach to address economic, social, political and cultural independence, the term *Communication for Development and Social Change*, best describes this study’s approach. Communication, participation, deliberation, and dialogue are how this research will ensure that participant voices are heard, valued and represented (Manyozo 2012). For these reasons, this study is based in postcolonial studies, recognizing the need to address unequal power structures and to avoid perpetuating ‘the politics of dominance,’ including suppression of worldviews that may challenge the dominant paradigm of the political elite (Said 1978). The argument put forward to support this position is that a community-based approach that includes participatory decision-making on the kind of world that people want to live in is essential.

### *Participatory Decision-Making*

As we view participatory action research (PAR) as a form of democratic, participatory decision-making, the study’s theoretical framework combines social and political science with communication literature. Democratic participation by citizens in decision-making processes

constitutes a form of deliberative democracy; that is, citizens' concerns feed into the policy-making process and are considered when making decisions. An emerging theme is that when people participate and approve certain decisions, the decision is legitimized in the public sphere. Extending this theme, Howarth and Painter assert that credibility, salience, and legitimacy are needed if climate science evidence is to inform local decisions (Cash et al. 2002; Howarth and Painter 2016).

As our study explores how the science of climate change can be communicated to motivate democratic participation in decision making and planning, we turn now to Fishkin's (2009) description of the four principles of democratic design—political equality, participation, deliberation and non-tyranny. Political equality means the inclusion of all views. Fishkin (2009) argues that participation without the inclusion of all interested parties and their views is not democratic. Deliberation is a term that describes “reasoning that is aimed at best addressing practical problems” (Nantz and Steffek 2004, 318). Non-tyranny describes action to avoid the “situation in which a winning coalition imposes avoidable severe deprivations on a losing one” (Fishkin 2009, 64).

Political scientist Joshua Cohen includes the presence of reasoned arguments to legitimize decisions made; that decisions resulting from deliberation are made accountable (Cohen 1997, 74). Accountability is described as “justifying by decision-makers of their actions to the affected parties” (Held and Koenig-Archibugi 2004, 126); while the communicative process of accountability used by decision makers to justify their actions is described as “discursive legitimacy” by Steffek (2009). This description of accountability corresponds with Howarth and Painter's (2016) assertion that legitimacy is required when communicating climate change science; but the attributes of credibility and salience, although perhaps implied are not explicit in normative models of democratic design. This study adapts Fishkin's democratic principles to include the attributes of accountability, credibility and salience to examine climate change communication undertaken in Pacific Island Countries and Territories (Fishkin 2009; Cohen and Sabel 2005; Howarth and Painter 2016) (Table 1).

Table 1: Model of Democratic Principles

<i>Participation</i>	<i>Inclusion of All Interested Parties Recognitions of Different Levels of Empowerment</i>
<i>Political Equality</i>	Representation of all views.
<i>Deliberation</i>	Reasoning aimed at best addressing the problem. Focus debate on common good.
<i>Accountability</i>	Discursive legitimacy. Justify actions by decision-makers to affected parties
<i>Credibility</i>	Information is believed or considered to be true
<i>Salience</i>	Information is delivered in a manner that is relevant to the local context

Sources: Data adapted from Arnstein 1969; Fishkin 2009; Cohen 1997;  
Howarth and Painter 2016.

### ***Public Communication, Participation, and Power in the Public Sphere***

Accepting public discourse as a factor that enables democratic decision-making, leads our review to participation terminology. Social science, communication, and political science literature reveal a multiplicity of terms used to describe participation between decision makers and publics—community engagement, civic engagement, stakeholder engagement, and public participation—to name a few. Recent studies warn that public participation does not guarantee public action. People may participate in a consultation event yet the issues raised may not capture their attention, or have sufficient meaning for them to motivate local action (Aslin and Brown 2004). Other challenges include participation processes that lack sincerity (tokenism); risk of exhausting over-participation for some; and unbalanced power relationships that may affect

participation if some participants have “agency” over an issue (Aslin and Brown 2004). For example, The International Association of Public Participation’s (IAP2) ‘model of participation’ widely used as a tool for enacting local participation, is criticized by communication scholars (Burnside-Lawry and Carvalho 2015, Carson 2008). The model fails to engage the public in the right way; by not reflecting “active public engagement in decisions made, or design of the participation process” (Carson 2008, 68).

American scholar Shelley Arnstein (1969) lists eight levels of public participation according to the degree to which the publics are empowered—from non-participation (manipulation by powerful decision makers), to levels demonstrating citizen empowerment—partnership, delegated power and citizen control (Arnstein 1969). Scholars and practitioners regularly cite Arnstein’s seminal work; however, critics reject the article’s central premise that citizen control is the ultimate goal of participation “an assumption that does not always align with participant reasons for engaging in decision-making processes” (Collins and Ison 2006, 4). The authors prefer to describe the “process” of interactions occurring between actors during participation as a form of social learning through collective engagement with others. The authors contend that collaborative social learning enables changes in knowledge and an increased understanding of its salience (relevance to local contexts), often reflected in modified policies and practice by decision makers and publics (Collins and Ison 2006).

### ***Cultural Influence***

Cultural influences, including religious and traditional beliefs and values, often drive social structures, livelihood, and habitat choices. These influences are increasingly acknowledged as potentially crucial determinants of behaviors (Becker 2012; Thomalla et al. 2015; UNISDR 2014). This increasing recognition of social and cultural influences on climate change adaptation is evident in recent international reports that identify an urgent need to build connections between climate science and traditional knowledge (Howarth and Painter 2016; IPCC 2014a, 2014b; UKCIP 2011; UNISDR 2014).

### ***Participatory Communication as a Process and an Outcome***

Scholars from the development sector are also concerned with social and cultural learning, arguing that effective two-way participation necessitate methods to engage in dialogue, listening to explore shared interests, joint problem-solving and relationship-building (Gao and Zhang 2001; Servaes 2008). We take leading participatory communication scholar, Thomas Tufte’s definition of participatory communication as “a process of public and private dialogue through which people themselves define who they are what they need and how to get what they need to improve their lives” (Tufte and Mefalopulos 2009, 2). The tenets of participatory communication include dialogical rather than linear communication, collaborative problem identification, and deliberation to examine the relevance of solutions to particular social and cultural contexts, decision-making and implementation of solutions (Tufte and Mefalopulos 2009).

In summary, the theme to emerge from our literature review is that climate change remains a complex issue to communicate to non-expert audiences. The predominant source of global information on climate change is the IPCC Assessment Reports. Recent studies find that the complex scientific language used in reports is a barrier to their use in local-level decision making (Howarth and Painter 2016; Cash et al. 2002; Barkemeyer et al., cited in Howarth and Painter, 2016). This research positions itself within postcolonial studies that value communication, participation, deliberation, and dialogue as the means to ensure that the voices of those most impacted by climate related events are heard, valued and represented. As we view participatory action research as a form of democratic decision-making, we contend that if participation to address climate change involves democratic participation, it will demonstrate the principles of democratic design as espoused by Fishkin (2009)—participation, political equality, deliberation,



non-tyranny, and accountability. Also, scientific information will be credible and have relevance to participants' respective local contexts. From this literature review, an original framework is designed and used to examine whether participants are provided with opportunities for democratic participation, and credible locally-relevant scientific information.

## Research Question

The research focuses on the efficacy of using PAR processes to design and implement communication and advocacy training to answer the question:

Does using a participatory action process provide local-level climate change leaders with opportunities for democratic participation in decision making and planning, and enhance the credibility and salience of climate science information provided?

## Research Methods

A qualitative case study using Participatory Action Research (PAR) as the overarching method, is undertaken. PAR is a social process in which people explore how their practices are shaped and constrained by social, cultural, economic, and political structures. PAR's theoretical foundation is Paulo Freire's belief in bringing people together to learn from each other's experiences, and to respond to their needs and opinions (Freire 1970; Manyozo 2012).

It differs from conventional research by establishing shared ownership of research projects between participants and researchers, recognizing the importance of identifying and strengthening social capital and networks (Putnam 2000). By focusing on the community-based analysis of social problems, participants collaboratively explore avenues for community action to bring about social change. With a commitment to social, economic, and political development, PAR enables collaborative planning and decision-making that may influence (micro) local development and (macro), global structures and social change (Kemmis and McTaggart 2000; Manyozo 2012). Recognizing that "the personal is political," this dual exploration interweaves community and civic engagement, connecting the local and the global to enact social change (Kemmis and McTaggart 2000, 283).

PAR is a deliberative process of observation, communication and dialogue to engage people in continuous Cycles of looking, thinking (reflecting), planning, acting and reflecting (Figure 1). The uniqueness of participatory action research is that this spiral of action and reflection is not "done" on others, but aims to transform *both* practitioners' theories and practices *and* the theories and practices of others whose perspectives and practices may shape the conditions of life and work in particular local settings. The PAR process involves the investigation of *actual* practices; a learning process that may result in real and material changes in what people do, how they interpret and interact with the world and others.

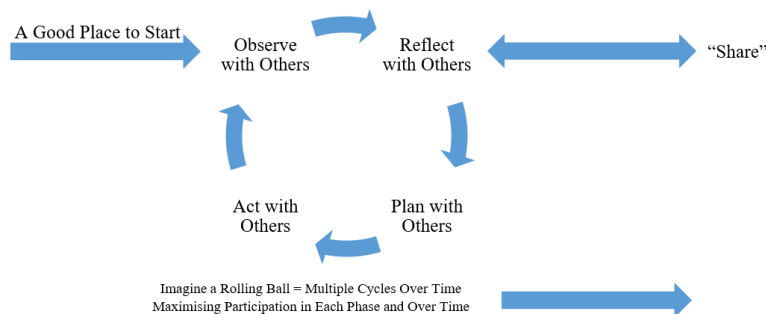


Figure 1: The Participatory Action Research Cycle (Par)

Source: [www.dss.gov.au](http://www.dss.gov.au)

### ***Three Cycles of the Study***

The study is longitudinal, conducted in repetitive Cycles over two years (to date). Each Cycle involves the following procedures: interviews (observing), workshops (planning), action, and reflection. Modifications are made based on reflections from previous Cycles. Individual Cycles involve a specific event, enabling the study to maximize participation related to respective contexts (Figure 2).

#### ***Cycle 1: Local Climate Change Leaders' Regional Meeting; 2015***

The first Cycle commenced in 2015. The event was PLAN International, Australia's (PIA), annual regional meeting held in Nandi, Fiji. The sample includes seven South Pacific climate change leaders who coordinate PIA's local-level climate change and disaster risk reduction (CCA/DRR) projects, and PIA's Australian-based climate change manager (Table 2). A letter authorized by RMIT University's Ethics Committee was sent by the PLAN International Australian manager to all local climate change leaders, describing the study's purpose, and asking team members if they would participate. Communication between the researcher and the respective climate change leaders commenced once PIA received team members' consent. A half-day participatory action workshop (PAR), led by the researchers, was used as a platform to commence group interaction, knowledge transfer, and reflection. Semi-structured questions designed for the one-on-one interviews and focus groups, followed themes regarding participants' current CCA/DRR communication practices, their level of understanding of climate science, and their perceptions of any communication or climate science skill gaps that they may have. Participants were encouraged to reflect on internal or external stakeholders who could provide knowledge to enhance their CCA/DRR work. The University of the South Pacific was identified by local climate change leaders, as a potential source of climate science knowledge and skills that they could benefit from (Attachment 1). Cycle 1 outcomes included a joint submission by RMIT and the University of The South Pacific, for funding to collaboratively examine communication practices used to enhance climate change adaptation in the Pacific.

#### ***Cycle 2: Preparation for COP 21 Paris***

The funding application (Cycle 1) was successful, enabling Cycle 2 and expansion of the research team to include highly renowned climate scientists from University of South Pacific's PACE-SD, and a digital communication specialist. Cycle 2's event was the preparation of the support team accompanying the Pacific delegation to COP 21 Paris. The sample included Cycle 1's local climate change leaders and participants selected to support their national delegations during the COP 21 negotiations. New participants included Pacific-based postgraduate students and a cross-section of local and regional NGO representatives. Student participants included postgraduate journalism, climate change, and law students from the University of the South Pacific (USP) (Table 2). Permission to extend the original ethics approval was provided by RMIT University's CHEAN (Committee for Human Ethics Applications). At the commencement of the COP 21 training, all present were invited to participate in either one-on-one interviews or focus groups conducted at the end of the training, and on return from Paris post-COP 21. Themes followed during questioning asked participants to reflect on the COP 21 Training Program schedule as well as provide perceptions of strengths and weaknesses of individual workshop sessions. A focus group held on participants return from Paris provided a forum for participants to reflect on a range of topics (see Results).

**Cycle 3: Preparation for COP 22 Marrakech**

With continued funding from the PACE EU Grant, and continuous feedback, Cycle 3 sample expanded to include cross-disciplinary representation from The University of South Pacific (capacity building), and postgraduate students from USP’s degree in Diplomacy and Negotiation (future Pacific leaders). Members of the previous COP delegation support team, and newly-selected student and NGO participants who would be attending COP 22 Marrakech, were included (Table 2). Using the same procedures established during Cycle 2, a consistent process is used for ethics approval, consent and questioning themes.

Table 2: Participants

<i>Cycle</i>	<i>Facilitator Researcher</i>	<i>NGO, CSO Local-Level Climate Change Leaders</i>	<i>Students</i>	<i>Presenters</i>
1	3	7	0	0
2	2	6	12	4
3	4	8	10	3

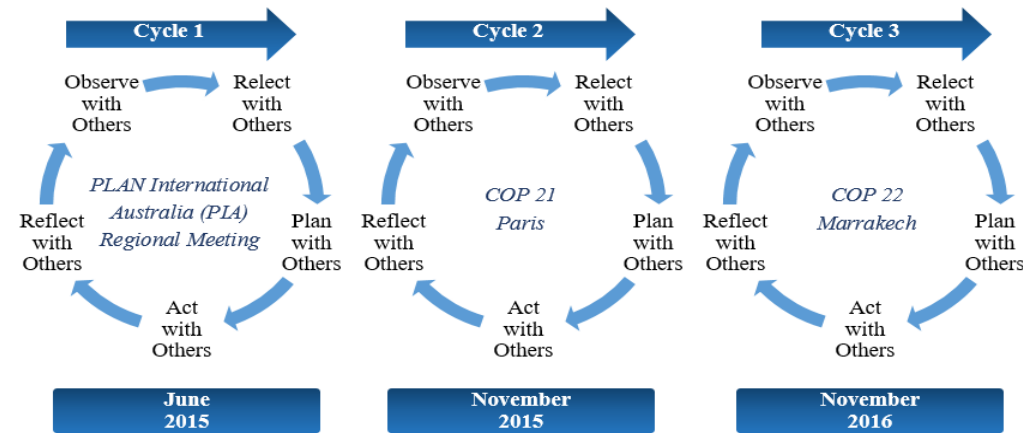


Figure 2: Study Cycles  
Source: Authors

**Data Collection**

Data collection methods across the Cycles are consistent. They comprise four sources: *interviews*, *online questionnaires*, *PAR workshops*, and *document analysis*.

**Interviews**

Each Cycle commenced by encouraging participant descriptions of their current communication methods to raise awareness of, to advocate for, and to recruit participants in, climate change adaptation (CCA) and/or disaster risk reduction (DRR). Semi-structured, one-on-one interviews were conducted to gain further insights into participants’ capacity building priorities related to advocacy and communication, and to explore participant views on what they would like to achieve as Pacific emerging leaders. Participants were encouraged to explore factors that would enhance local (micro) and global (macro) level participation in CCA/DRR. Researchers had opportunities to observe case study or fieldwork examples provided by interviewees to support their responses. Interviews and focus groups provided participants with a supportive environment

to individually and collaboratively reflect on strengths and weaknesses of current communication methods and possible capacity gaps in their knowledge and understanding of climate change science and its relevance to their local context (Attachment 1). Previous research in similar contexts has shown that providing interviewees with opportunities for reflection captures a breadth of perspectives and achieves a degree of convergence amongst perspectives.

### ***Online Questionnaires***

Results from Cycle 1 interviews informed questionnaire design. In each Cycle, online questionnaires were sent to student and NGO representatives who could not attend face-to-face meetings. Cycle 1 participants provided examples of written communication plans they used to raise awareness of, and/or recruit participants in CCA/DRM (Attachment 2).

### ***PAR Workshops***

Participatory Action Research (PAR) workshops were included in all Cycles of the project as a method of inquiry, capacity building, and reflection (Hearn et al. 2009; Whyte 1991). The main thrust of this approach was collaborative engagement: a collective, self-reflective inquiry, learning, and reflection that researchers and participants undertook, so they could understand and improve upon the practices in which they participate and the situations in which they find themselves. We applied the collaborative, reflexive process of participatory action research (PAR) within capacity building sessions. The reflective process linked climate science to action, influenced by an understanding of history, culture, and local context and embedded in social relationships to obtain an understanding of participants' existing CCA/DRR skills, advocacy capabilities and communication outputs. The PAR design sought to enhance mutual awareness of compatibilities in participants' interests and skills; build trust to facilitate communication and knowledge transfer, and build a more collaborative ethos across organizational boundaries. During the PAR workshop participants were encouraged to discuss in small groups, followed by presentations of their:

- existing knowledge of climate change science and policies;
- current communication tools used to engage with CCA/DRR stakeholders;
- current gaps in CCA/DRR advocacy or communication skills;
- training needs to strengthen local level action in addressing climate change and disaster risk.

### ***Data Analysis***

Analysis involved two procedures. Initially, thematic orientations relevant to the research purpose were developed inductively and deductively. Miles and Huberman (1994) describe this process as developing a set of provisional codes based on the conceptual framework. Anticipated categories include democratic design principles, accountability, credibility, and salience (Table 1). Participant responses and relevant text from data sources were highlighted either on the document copy or within the interview transcript, and then coded by both authors. Secondly, open coding procedures were employed, to identify emerging themes and sub-themes, based on their "recurrence, repetition and forcefulness" (Dempsey 2010, 369; Schwandt 1997). In line with this journal's themed issue, we present findings related to political and social responses to climate change, and analysis of whether the PAR process provides opportunities for democratic participation in climate change decision making. A description of each data collection technique follows.

A variety of international, national and local level documents were examined to study the impact of policy on local-level action to address climate change and disaster risk. Documents included:

- International and national levels: COP meeting documents, South Pacific policies, white papers and negotiation papers relevant to SIDS and climate change.
- Organizational levels: media and communication plans, strategies, outputs related to climate change adaptation.
- Digital and print media before, during and after COP 21 and 22 related to SIDS and climate change, and outcomes.

## Results

Democratic design principles, with the addition of accountability/legitimacy; credibility and salience attributes provide the framework for presentation of results (Fishkin 2009; Howarth and Painter 2016). If the principles of democratic design are present, procedures will provide opportunities for citizens' concerns to feed into the policy-making process and to be considered when decisions are made (Fishkin 2009). Principles and attributes are not mutually exclusive, for example, the list of participants attending each Cycle of the study invites an analysis of political equality, participation, and credibility. Each Cycle involves the following procedures: interviews (observe), plan (reflect), workshops (act), and reflection (Figure 2).

### *Participation*

Fishkin (2009) defines participation as a public sphere that is open to all interested parties (Fishkin 2009). Participants from the different sectors were invited based on the criteria that they would either be attending the COP Convention or be providing backstopping services/reporting on COP from Fiji. During Cycle 1 a group of seven NGO climate change leaders working directly within communities were invited to participate (Table 2). PAR procedures (interviews, planning, workshops, and reflection), ascertained the level of knowledge, skills and capacity building needs of participants. Questions and workshop activities were designed to elicit information about current practices undertaken by participants to encourage local climate change action. 'Fact-finding' procedures tend to involve one-way communication from participant to the researcher, not meeting Fishkin's (2009) democratic principles. During Cycle 1 there was a risk of a one-way power imbalance between researchers and CC leaders, which could encourage CC leaders to take a passive role as "subject under investigation." Particularly relevant to this Cycle is the assertion that unbalanced power relationships may affect participation if some participants have "agency" over an issue (Aslin and Brown 2004).

An introductory workshop was held to introduce the project, the researchers and the PAR process to mitigate this risk. CC leaders were invited by an independent party (PLAN manager), to participate in the project if they felt it could be useful to them. The PAR format provided a platform to build trust and collaborative action amongst participants. Activities were structured to create a safe space for discussion while building a common appreciation amongst the participants of their respective skills and capacities.

During Cycles 2 and 3 participant numbers increased to include postgraduate students knowledgeable of climate science, climate scientists, church youth leaders, local media representatives and Council of Regional Organizations in the Pacific (CROP) agencies. Interviews and workshops became an opportunity for participants to explore common ground, common frustrations, common goals, and compatible skills from a diverse range of backgrounds.

### *Political Equality*

Information shared during the introductory workshop and subsequent interviews indicated that all CC leaders had access to government bodies and organizational relationships with their respective provincial or national government departments. Cycle 1 findings indicated that access to decision makers was not used for advocacy. In Cycle 1 all participants reported their CCA or DRR activities to either a Ministry of Education or Climate Change, depending on the country. Their level of political participation could be considered one-way from the NGO to the Ministry. There was no evidence that local level CC leaders were aware of, or feeding information into the policy making process at provincial or national levels. The one-way reporting from grassroots upwards to decision-makers is reflected in this quote, and was consistent across most Cycle 1 participants:

We have a climate change unit that's under the Ministry of Foreign Affairs, and... our Ministry of Education and a district and provincial office. If we do work with the schools then we go to our district and provisional officers to update them about the project.... That is how we engage with our government departments. Usually we do an initial project presentation to our stakeholders, the government and other provincial officers, just to let them know that we have this project that's happening in that district or the area. (Cycle 1 [C1] Interview)

During Cycles 2 and 3 it was evident that participants had access to their national government delegations (decision makers attending COP meetings). PAR procedures provided a safe environment for participants to consider their potential role as advocates, and to realize the validity of feeding their views and their climate change knowledge and experience into policy negotiations and decision making at COP meetings. Communication and negotiation training allowed participants to practice communication strategies to encourage a more networked, collaborative way of working to ensure their views were considered, not only during the PAR process but in COP negotiations.



Figure 3: Communication and Collaborative Action  
Source: Authors

### *Deliberation*

Nantz and Steffek (2004, 318) describe deliberation as “reasoning that is aimed at best addressing practical problems and focuses debates on the common good.” During PAR procedures across all Cycles, participants were encouraged to explore factors that would enhance local (micro) and global (macro) level participation in CCA/DRR. By doing so, discussion countered ‘the silo effect’ of inter-and intra-organizational tensions. These tensions occur when non-government organizations are forced to compete for limited external funds:

We [NGO] work with the government, and they recognize our experience in rural development. We each concentrate on our communities. ...we share information through our individual organization's regional office. Networks built in these workshops ...they include universities, NGO's and even students of climate change. [It is hoped that] we can keep this network alive... (C2 Workshop)

During Cycles 2 and 3, participants developed innovative strategies to provide a stronger Pacific voice at COP events. Speakers and journalists who had previously attended COP negotiations shared stories and experiences. Guest speakers described the COP negotiation environment as intense and volatile. This information prompted participants to establish respite centres and communication channels (virtual and actual), to protect their resilience during the two-weeks of COP meetings (Figure 3).



Figure 4: Deliberation  
Source: Authors

### *Accountability*

Deliberation and accountability were evident in the methods used to design and evaluate the workshops. Participants reflected on content and processes used, giving honest and frank opinions when asked about the strengths and weaknesses. For example, Cycle 1 participants acknowledged their lack of climate science knowledge, requesting access to environmental science information via the University of the South Pacific. In response to this request, USP's Environmental Department became a project partner. During Cycle 2, some participants suggested the negotiation sessions could have commenced earlier, and that further capacity building on this topic would be beneficial. This feedback informed the design of Cycle 3, with USP staff from School of Government, Development and International Affairs providing more extensive negotiation training. Explaining the modified plans for Cycle 3 workshops to participants is an example of accountability.

A weakness in procedures was the lack of government decision makers as participants. Not only is this a gap in the quality of participation, but also in the quality of accountability/legitimacy "justifying by decision-makers of their actions to the affected parties, or stakeholders" (Held and Koenig-Archibugi 2004, 126). Students attending COP negotiations with their respective nation's delegation would have other opportunities to participate in pre-COP training with their respective delegation, access not provided to NGO representatives. Lack of government presence limited the quality of debate around Pacific policies prepared for COP

negotiations. Researchers are aware of this ‘democratic deficit’ in program design, and effort will be made to include government delegates in future PAR events.

### ***Credibility***

The Webster dictionary describes credibility as the quality of being believed or accepted as true, real, or honest. During Cycle 1, participants were asked to describe the sources they used to learn and maintain their knowledge in climate science. Results support Howarth and Painter’s (2016) contention that IPCC reports are of limited relevance to staff involved in local decision-making. Many respondents identified the internet (Google), or their respective organization’s donors, as their source of information:

...out of reading about it from books. [there is no] formal training on it... and what [ is not known] is found on Google. Sometimes it’s ...hard when you don’t have the piece of paper to support you. When you walk into classroom and teachers have that piece of paper... it makes you really feel small. ...we use traditional knowledge. (C1 Focus Group)

One of the seven CC leaders mentioned the IPCC documents as an information source:

I have a degree in an environmental science and a postgraduate diploma in climate change...I go online, I download reports from the IPCC report or other reports on climate change, update news...whenever I go to the communities I’ll be up to date. Even on Facebook they have updates from other organizations worldwide. (C1 Interview)

Cycle 1 participants called for assistance in accessing more credible sources of information:

We need... support. We need institutions like USP to... give us up to date information, up skill our climate change officers, disaster officers...that is the only way we can improve on what we are doing and... help the rural communities learn better and...better prepare for disasters and adapting to climate change. (C1 Focus Group)

In response, USP climate change scientists/academics were invited to partner with RMIT University in the project, resulting in participant perceptions that climate science information provided was credible:

To get information on environment and science directly from the experts, instead of from networks like our donors... (C2 Workshop)

The inclusion of renowned climate change scientists in the PAR procedures from Cycle 2 onwards has increased the credibility of climate change science knowledge provided. This inclusion allowed participants to engage in the development of macro and micro action plans that could facilitate and enhance collaborative and communicative resilience building, while receiving invaluable feedback from climate change experts, and postgraduate students in environmental/climate change degrees.

### ***Credibility and Culture***

At both post-COP workshops (COP 21 and 22), participants spoke with concern about the culture of “politeness” of their people. Having been exposed to the diplomacy styles of different nations, participants noted that Africa, Argentina, and Nauru were more forceful in negotiations than the South Pacific, during COP meetings:



Our culture of politeness is holding us up.

Another observed:

We need to change the Pacific way of negotiation-- needs to be more forceful.  
(C2 Reflective Workshop)

There was agreement that the Caribbean negotiators had credibility and as a result, a louder voice during COP meetings

Most of the Caribbean Ambassadors were women and were amazingly good  
(C2 Reflective Workshop)

### ***Salience***

Defined in the Webster's Dictionary as "the perceptual quality by which an observable thing stands out relative to its environment," 'salience' in the context of climate change, is described as information that gives context to local decision making (Howarth and Painter 2016). Document analysis revealed the Strategy for Climate and Disaster Resilient Development in the Pacific (SRDP), ratified in September 2015, as the most recent Pacific Islands policy initiative (SPC 2015). Our findings concur with assertions that there is limited evidence of local-level participation and implementation of policy to date (SPC 2015; IPCC 2014a). In our study, no reference is made to this strategy as background for local decision making. A possible hypothesis for this is that the strategy is not communicated to local end-users in a way that is relevant to local conditions. As our study did not include political representatives in the PAR procedures, it is not possible to provide details regarding design and implementation methods used to create the SRDP (lack of accountability/legitimacy, salience) (See Recommendations).

Results indicate that local CC leaders include the use of traditional knowledge and site excursions to interpret, understand, and make climate science relevant to local conditions.

My biggest strength is my experience with the communities. I use that. I use traditional knowledge...it helps the children understand it more. And...take them out too, I've done a lot of practical outside (C1 Focus Group)

### ***Post-COP Reflections***

Participants were invited to workshops to reflect on the outcomes reached at COP meetings and on their roles in supporting their respective delegations. For example, post-COP, a summary of "The Paris Agreement" was presented by one of USP PACE-SD climate scientists. This was followed by round table discussions between participants and researchers. Each participant spoke of highlights during COP 21, their respective roles during negotiations, and their understanding of the salience of the Paris Agreement to their respective country or territory. General discussion followed individual narratives, as participants engaged in group reflection. Participants (delegate supporters and researchers), were encouraged to synthesize the journey undertaken, and verbally reflect on lessons learned (positive and negative). This process provided valuable feedback regarding the strengths and weaknesses, opportunities and gaps of PAR procedures, and capacity-building session.

Participants shared humorous stories of life-changing experiences. Environmental, cultural and social learnings included residents of tropical islands experiencing winter temperatures in Europe. Discussion included observations regarding differences in food, languages, and social norms. Examples between island and urban lifestyles include:

I warned our team not to eat seafood in Paris... it is too far from the ocean  
and:

In the meals at the conference centre was this strange bread called Baguette  
...dangerous bread you could kill someone with that machete (C2 Reflective Workshop)

The laborious process of negotiation was a topic of much discussion. COP participants agreed that the most sensitive texts were “Loss and Damage,” and “Finance.” Participants described their amazement at the power of one word during tense diplomatic meetings, and there was a lively discussion amongst participants:

The negotiation over the difference between using the word “shall” and “should” in Article 8 lasted for more than 6 hours (C2 Reflective Workshop)

Table 3: How Participatory Action Research Impact Participant Responses

	Cycle 1	Cycle 2	Cycle 3
Participation	X	✓	✓
Political Equality	X	X	X
Deliberation	✓	✓	✓
Accountability	X	X	X
Credibility	X	✓	✓
Salience	✓X	✓X	✓X

Conclusion

This article provides evidence of how end-users access, interpret and respond to climate change information. Findings suggest that using a participatory action process enabled participants to learn new skills and approaches to communicate and integrate climate science into practice at the micro level, while also making a strong, positive impact on decision-making during macro climate change negotiations.

An overarching methodology of participatory action research was used to build a shared understanding of science, history, culture, and local context amongst participants (researchers, guest speakers, students and NGO climate change practitioners). The program established a nexus between research and practice to foster inter-agency communication and build trust. PAR was used as a collaborative reflexive process to understand and improve upon, practices and situations in which participants find themselves. PAR was deemed essential to amplify the voices of those who have done the least to contribute to climate change, but are the most severely affected (Dreher and Voyer 2015; Robinson 2010).

In the safe environment of experiential learning, participants spoke openly of their hopes and fears as Pacific Island climate change leaders. Participatory communication, collective problem identification, and context-relevant decision-making, created a workshop environment conducive to dialogue (Fishkin, 2009; Tufte and Mefalopulos 2009; Howarth and Painter 2016). Paying attention to relevant climate science information provided by credible scientists enabled conversion of complex information into accessible language. Participants were encouraged to voice personal stories of climate change impact in their respective local environments. Participants were empowered to share their stories, exchange ideas and together understand the local relevance of complex policy and scientific documents in a safe environment.

During reiterative Cycles 1–3, participants gained confidence in their knowledge and abilities, came to appreciate the power of the local-level experience of living with climate

change, and the need to take responsibility for the future of their Pacific islands during global climate change decision.

Participatory action research, with its emphasis on building sustainable relationships and trust, enabled the research team to organically grow over time to now include the University of The South Pacific's expertise to connect this research with the international scientific community and Pacific Island Countries regional governments. Civil society and community groups have increased the depth and reach of this project over time by partnering with an increasing number of non-government organizations. The intersectoral collaboration allows not only an increase in local engagement and understanding of the climate change science, but provides a platform to disseminate the impacts of climate change on the Pacific rim to internationally-based scientists and policy makers.

## **Recommendations**

Reflection is important in participatory action research. Participants provided constant recommendations for modifications and improvements to this longitudinal study. Findings respond positively to answering our research question, "Does using a participatory action process provide local-level climate change leaders with opportunities for democratic participation, and enhance the accountability, credibility and salience of climate science information provided," but there is more work to be done.

### ***Include Policy Decision Makers***

Lack of government presence limited the quality of debate around Pacific policies prepared for COP negotiations. In future, participants will have opportunities to challenge policy decisions to give salience to decisions, to improve the quality of participation and accountability/legitimacy. Fiji will serve as the President of COP 23 to be held in Bonn, Germany in November this year. The University of the South Pacific will support the Fiji Government in the lead up to COP 23, providing an opportunity for the 2017 PAR workshops to include policy decision makers.

### ***Local CC Leaders' Methods of Finding Salience in Climate Science***

Findings suggest that local CC Leaders find their own ways to make sense of complex climate science and relate it to their context-specific local conditions. Recommendations include further research in how CC leaders use methods such as traditional knowledge and practical excursions, to help communities better understand climate related issues.

### ***From Process to Outcome Evaluation***

This article focused on the efficacy of PAR to enhance democratic participation by local level participants in climate change science and policy making. Public participation and cross-sector stakeholder collaboration are recognized as vital components to implementing the achievements made at COP 21 and 22. The study describes a method to develop capacity of emerging Pacific climate leaders in communication, collaboration and advocacy. Further research is recommended to explore this methods potential in addressing the 'wicked problems' of how to enact the aims of the landmark Paris Agreement to reduce climate change effects and manage disaster and development risks. Our final recommendation for future research is to examine the impact of the PAR Cycles on local-level climate change leaders' ability to incorporate climate science into local-level action to address the impacts of climate change.

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## APPENDIX 1

## Phase 1 Interview Prompt

The aim of the project is to work with South Pacific island nations and community-based organizations working in climate change adaptation in the Pacific region to build capacity and capability in communicating climate change adaptation and disaster risk management. This set of questions aims to get a base line understanding of the current situation that you work in, to assess current skills and future training needs.

Name: \_\_\_\_\_

Organization: \_\_\_\_\_

Role: \_\_\_\_\_

<i>Q</i>	<i>Interview Prompt</i>
1	What is the goal/objective/s of your organization in relation to CCA and DRM?
2	Can you identify the stakeholders that you currently engage with in the following 'family groups'? employees, donors, govt, civil society, community, church groups, schools, other Can you identify stakeholders that you WANT to engage with in the future?
3	How do you currently communicate with each of your CCA/DRR stakeholders?
4	Are there any communication skills that you would like to learn to help you communicate better with some stakeholders? Do you need any resources or help to communicate better with one or more stakeholder group?
5	What media do you currently use What is the aim of the media? Raise awareness? Change attitudes? Change behaviours? Change policy?
6	Are there any media skills that you would like to learn to help you advocate better for social change in relation to CCA and DRR? Do you need any resources or help to use the media better to advocate for social change in CCA and DRR?
7	Where do you receive your knowledge of the environmental and science facts for CCA and DRR to use in your communication with stakeholders? How do you keep up to date on any new environmental or scientific data on climate change and disaster risks for your island? If you need more scientific/environmental advice who do you approach?

## APPENDIX 2

## Online Questionnaire

*Future Climate Change Leaders in the South Pacific*  
November 2–5, 2015

Name:

Place a tick in the box that best describes you:

Journalism Student		Climate Change Student		NGO Representative	
Volunteer		CROP Organization Representative		Other	

To ensure the training program meets your needs, please indicate which of the following topics you would like to learn about by placing a tick next to topics you would like to be included.

<i>Theme 1: Diplomacy &amp; Advocacy</i>	<i>Tick if YES</i>
How does the negotiation process work?	
What to expect at COP? A diplomat who has been part of a South Pacific delegation to COP in the past will discuss their experiences.	
How can you make a valuable contribution to your country's delegation?	
What skills are required when advocating for Climate Change?	
How do you communicate with a minister?	
How do you create summary sheets for a minister?	
What are all the Pacific Nations' Government policies on Climate Change?	
What are all the Pacific Nations' Government policies on Climate Change?	
What does a policy document look like?	
<i>Theme 2: Climate Change Science</i>	
What are some of the major global issues that will be negotiated at COP 21?	
What are the key climate change challenges in your country?	
What do you need to know about climate change in your country?	
How do you effectively communicate this information to the global community?	
<i>Theme 3: Preparing your Communication Plan for COP 21</i>	
What communication plan does each individual require to optimise COP 21 outcomes?	
What are each participant's goals, objectives, strategies, and evaluation methods?	
What digital communication strategies can participants use to find, share and discuss information about Climate Change issues? (Rosa)	
What listening skills do participants need to be effective communicators?	
How to create a professional presentation at CO P21	
What oral presentation skills are required for public speaking?	
How to give a dynamic oral and visual presentation	
<i>Theme 4: Media Liaison</i>	
How to prepare briefing notes for a minister or delegation member	
How to write a ministerial speech?	
How do you write a press release?	
How do you contact the media?	
How do you hold a press event?	
What does the media look for in a story?	
How to get the media interested in your story?	
How do you develop key messages?	
How to talk on radio	
Tips to advise your delegation on radio skills	
How to present on TV. Tips to advise your delegation on video and television skills	



<i>Theme 5: Leadership</i>	<i>Tick if YES</i>
What skills and knowledge do you need to be a leader of change?	
What do you see as your leadership style strengths and weaknesses?	
Not everyone is a leader, if you are not a leader, do you possess good self-management skills? Are you an influencer?	

## ABOUT THE AUTHORS

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***The International Journal of Climate Change: Impacts and Responses*** seeks to create an interdisciplinary forum for discussion of evidence of climate change, its causes, its ecosystemic impacts, and its human impacts. The journal also explores technological, policy, strategic, and social responses to climate change.

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