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INVESTIGATING THE UTILITY OF RAPID ASSESSMENT PROCESS FOR ENVIRONMENTAL DEVELOPMENT WORK OF PEACE CORPS MASTER'S INTERNATIONAL STUDENTS

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Abbreviations

APCD	Assistant Peace Corps Director
COCODE	Consejo Comunitariosde Desarollo
MTU	Michigan Technological University
PC	Peace Corps
PCMI	Peace Corps Master's International
PCV	Peace Corps Volunteer
PML	Portable Microbiology Laboratory
RAP	Rapid Assessment Process
RPCV	Returned Peace Corps Volunteer
SPA	Small Project Assistance Program
USAID	United States Agency for International Development
WASH	Water, Sanitation, and Hygiene
WHO	World Health Organization

Abstract

Peace Corps Master's International (PCMI) students engage in international development when they assume the role of Volunteer and graduate researcher. Michigan Technological University had the largest PCMI program in the country, with many Volunteer assignments involving environmental problem solving opportunities. Unfortunately some PCMI students have experienced "failed projects," something not un-common to international development approaches. This research design supports institutional interdisciplinary efforts aimed at preparing PCMI students to engage in productive community development that avoids historic pitfalls of international development efforts. In order to contribute to this effort, the Rapid Assessment Process (RAP) approach was identified as a potential tool to help PCMI student and was adapted as a case study in Guatemala. The case study examined the feasibility of a PCMI student implementing a RAP to better understand their community and to collaborate more effectively in the design and implementation of environmental solving projects. The case study was complemented by extensive qualitative interaction with the Michigan Tech Peace Corps community.

The results from this investigation highlight the success of implementing the RAP case study and the identified benefits for PCMI students to use social science methods in a systematic way to approach environmental problem-solving. Recommendations are made for its implementation in the preparation, training, and advising of future PCMI students and for broader application by internationally engaged students at Michigan Tech. Using social science tools to develop a holistic understanding and collaboratively define a problem is important to the formation of sound and effective policy and best practices for effective and appropriate international development work.

1. Introduction

Government institutions, non-profit organizations, private enterprises, and academic institutions are all involved in work across the globe, many aimed at addressing environmental problems in developing nations. Accounts of development policies and projects which are not sustainable, or which have "failed," are unfortunately common in the history of experts from the "developed world" taking on the challenge to attempt to solve the problems of the "developing world." Lack of meaningful participation from local beneficiaries is often the crux of these failings. Over the past 50 years, local and global policies and practices for addressing international development challenges, including environmental ones, have shifted from top down approaches to bottom-up models.

Agencies and institutions have responded to failures and critiques by shifting approaches to incorporating the local context and stakeholders more prominently in the identification and design of development efforts. One such development agency, at the core of this research project, is the United States Peace Corps. This agency emerged in the 1960s as a counter-measure to the top-down mechanism of United States foreign assistance. Part of its congressional mandate -helping to meet interested countries' needs for trained men and women (Peace Corps 2016)-positions Peace Corps Volunteers (PCVs) to focus on the bottom-up approach to development.

The research presented herein connects intersecting interests at Michigan Technological University, home to what was the country's largest Peace Corps Master's International (PCMI) program and an academic institution interested in encouraging the development of globally competent professionals. Specifically these interests include the desire to validate the utility of and investment in the adoption of social science methods, and the interest in considering the role Michigan Tech students play in international environmental development as Peace Corps Volunteers. Finding a methodological approach which could put social science methods into direct practice and provide an

opportunity to examine their utility was the goal of this research. After a preliminary review of anthropological and ethnographic methods, the Rapid Assessment Process (RAP) was identified as the strongest candidate to use as an investigative case study of the use of a systematic social science tool by a PCMI student.

The focus of this research changed during the research process. The original research question sought to evaluate the potential utility for a student in the PCMI program to adopt a RAP approach while serving in their PC community. More explicitly the original interest was in determining whether the RAP could help the PCMI student do the following: a) develop an improved understanding of the community; b) collaborate more effectively to design and implement appropriate or successful environmental projects; and c) minimize potential pitfalls of community development work. Given the situation of the case study community and the limitations of measurability I realized that I couldn't adequately make these assessments. What I did investigate is whether the application of RAP techniques is feasible in a PC setting and whether the RAP could positively contribute to the approach of a PCMI student when addressing an environmental development challenge in their assigned community. The results are grouped into three categories outlining the strengths and challenges of the RAP approach for the PCMI student setting.

The case study investigates environmental problem solving with a specific focus on water development issues. As global water issues gain more prominence in international development focus, it is increasingly important to establish the differences between perceived, reported, and situational realities related to water problems and needs at the local level (Yach 1992). Past experiences have revealed that it is difficult in many developing countries to find accurate data and statistics, particularly in rural areas, which could be used to understand the local context and begin to design solutions for existing problems of local concern, like shared water resources. Peace Corps Volunteers are uniquely placed, living and working closely with their community counterparts for two years, to understand the local context and what factors should be considered in

environmental problem solving. The case study presented as a part of this research was designed to investigate whether a rapid assessment tool, specifically the RAP methodology (Beebe 2001), used by a PCMI student, is an appropriate and effectual way to examine the water resources available, the values attributed to water use, and the local context of water issues in order to design solutions that make positive contributions to the efforts of global water development.

The utility of using social science tools in the Peace Corps Master's International program and other international development efforts at Michigan Tech is under-examined. This is significant because finding evidence that the use of these methods can improve community understanding and collaboration on the design of effective solutions could be of real benefit to Michigan Tech and the Peace Corps. It could also add to the empirical support for using rapid qualitative assessments in environmental problem-solving contexts.

1.1. International Development Policy Context

1.1.1. History of Development

This research, exploring the use of social science methods by PCMI students to better understand community contexts, can be extended to a broader examination of how science and engineering experts engage in designing sustainable technological solutions to environmental development challenges. One recognized perpetual shortcoming of technical and engineered solutions in international development contexts, like ones often undertaken by PCMI students, is that they are not always accepted by the community, 'successful' or 'sustainable,' and are often referred to as failures (Ferguson 1994; Fisher 1997; Li 2007; Temudo 2005). Problematizing development by examining its foundations and progression through five decades of political, environmental, economic, and global change provides a perspective of the realities and expectations that development workers, like PCVs, face as they engage in community development efforts to solve global environmental problems. This is a U.S.-based, Western historical

perspective. There are many other histories of "development" but because the focus of this research is on an American university and the Peace Corps-both U.S. institutions-this particular perspective on development history is presented here.

Models of development have experienced a number of paradigm shifts since World War II when the impetus for United States engagement in international development projects took new form and sparked a new era of international engagement, defined by principles that expressed the need for scientific expertise to lead the way in improving the lives of underdeveloped peoples around the world. Foreign assistance became a "fundamental component of the international affairs budget" and "as essential instrument of U.S. foreign policy" (Tarnoff 2004).

De Haan (2009) points out that major shifts occur in development discourse and practice consistently every ten years. In President Harry Truman's inaugural speech in 1949 he redefined a significant proportion of the worlds' population as being "underdeveloped," lacking the resources to develop and achieve a newly Western defined level of modernity, growth and economic development (Agarwal 1996; Escobar 1995; Esteva 1991; de Haan 2009; Rist 2009). Truman called for developed Western nations to focus attention and resources on developing humanity's "least fortunate members" (Truman 1949). This set the expectation that all countries should strive for hegemonic economic growth, democratic governments, equality, and prosperity.

1.1.2. The 1960s and 1970s

The 1960s represented a period which the United States Agency for International Development characterized as "high-level development" (USAID 2016). At this time, there were few players in the exchange of development assistance, consisting of donor governments and international institutions like the World Bank and International Monetary Fund, targeting globally identified development goals, funneling funding down to central governments, with capital and technical expertise supporting the establishment of physical and social infrastructure. Science and technology were hailed as the saviors to

the poor and underdeveloped and many countries were beneficiaries of "intrusive resource management strategies and planned development" (Agrawal and Gibson 1999).

There was rising criticism in the 1960s and 1970s to the way that development projects had been implemented over the past two decades. There were realizations that policies which prioritized growth and top-down management were failing to meet the intended goals of "successful" development. This was accompanied by increased awareness of global environmental problems (Keck 1995). There was increased understanding of cause and effect mechanisms that were driving global environmental processes. The 1972 United Nations Conference on the Human Environment promoted problem solving initiatives, like drought, agricultural limitations, ozone depletion, threats to coral reefs, loss of rainforests and biodiversity and lack of threats to water resources became part of international development agendas (Adams 1990). Subsequently, during the 1970s there was a shift to create development targets that went beyond infrastructure to the concepts of basic needs and human development.

Failed projects and unsustainable strategies plague the development sector and draw sharp criticisms. A study conducted by Lance and McKenna (1975) assessing the introduction of "Western" development projects to the developing world concluded that while the prospect of introducing change is complicated by many factors, the only projects reviewed that were "successful" were those that included participatory strategies. They identified the shortcomings of the lack of participation which led to misunderstandings and misinterpretations of the beneficiaries' values, social and political structures which in turn led to selecting the "wrong innovations" and having failed projects.

The Peace Corps emerged in 1961 at a time when the United States shifted its strategic involvement in international engagement away from countries on the "right" development track, to newly independent nations, nations where social, political and economic problems persisted, and crises related to environmental conditions (Peace

Corps 2010). The Peace Corp's original model of international engagement, as de facto agents of development, was based on ideals of sending skilled Americans around the world to live and work in communities, helping the people there to improve their lives, while simultaneously learning about local culture and sharing American culture with them (Peace Corps 2008).

1.1.3. The 1980s

Robert Chambers emerged as a leading figure in development discourse and engagement in the 1980s. He listened to the criticisms of people like Paulo Freire and encouraged development approaches that incorporated participation and active partnership with beneficiaries of development projects. He developed and implemented participatory approaches that were emulated by institutions, researchers, NGOs, international and national development agencies and governments (Chambers 1994a).

This decade continued to reflect the value that was placed on high levels of expertise and outside knowledge to make up for the perceived deficit of those skills, technologies, ideas, and resources in the places which were targets for development projects (Mosse 2004). Technological and scientific approaches remained the focus of development, because involvement in political and social contexts often proved too difficult, elusive, time consuming, or daunting for agencies involved in delivering development (Li 2007; White 1996). Despite technical innovations there were still high levels of poverty, infrastructure, health, and environmental problems. There was a "wrong-headed assumption that modern technology could solve 'Third World problems" (MacDonald 1995, 2). Technology and expertise needed to be combined with other strategies, like participation.

Development practitioners began to ask what the role of the beneficiaries was and it became apparent that in conservation efforts, the concerns and needs of the local population was crucial for effective problem-solving. The "poor" transitioned from being characterized as victims or perpetrators of environmental problems to likely sources of

solutions (Keck 1995). The focus on the concept of sustainability, which required local involvement gained momentum at the World Commission on Environment and Development in 1987 (Adams 1990).

1.1.4. The 1990s

Reflections of the three previous decades led development thinkers and policy makers in the 1990s to contemplate the overwhelming evidence of the numerous failures, lack of success, unmet goals, and genuine dissatisfaction and disenchantment from the cumulative efforts towards international development since the 1950s (Agarwal 1996; Haan 2009; Escobar 1995; Lewis and Mosse 2006; Rahnema 1991; Rist 2009).
The dependency on external forces and external ideas had not yielded overwhelming success in sustainable development interventions (Temudo 2005; Haan 2009; Escobar 2011). Also in the 1990s development initiatives were increasingly subject to decentralization, as central governments shifted the burden of resources, expertise, and implementation to the local government level. Focus on "grassroots," "community-based," and "locally driven" approaches took hold as the next iteration of development best practice. The United Nations Conference on Environment and Development in 1992 engaged a great number of non-governmental organizations, promoting alternative models to development and ways to fill in gaps in state and local government institutions (Mosse 2004).

1.1.5. New Millennium

Although international development began with a top-down approach, the last decades of the 20th century saw dominant development frameworks shift emphasis toward grassroots empowerment, capacity building, and meaningful local beneficiary involvement (Chambers 1994; Derman 2003; Doolittle 2006; Ellis and Biggs 2001; Li 2007; Yacoob and Whiteford 1994). It is now widely recognized that the solutions for development problems are not solely characterized by applying resources and outside ideas to local problems and contexts, but that collaboration between skilled and professional

development workers and local beneficiaries is necessary for intervention implementation to succeed (Breslin 2011; Derman 2003; Temudo 2005).

Contemporary international development and engagement promotes the following best practices and achievement targets: community based, collaborative, sustainable, locally designed and driven, appropriate technology, culturally appropriate, inclusive of marginalized groups, equitable, rights-based approach, transparency, measurable indicators, precautionary principle. International development approaches are subject to international governing bodies like the United Nations Environment Programme (UNEP) and to the policy frameworks of individual nations. International development policies and frameworks are carried out through various international agreements and declarations. These guiding concepts are applicable not only to aid organizations and development agencies but also to academic research and the institutions engaged in science and engineering for international development.

1.1.6. Participation

Participation has experienced a range of initiatives, favorability, and mandates for use, despite being part of the development discourse since the 1950s (DeKadt 1982). Participation is an ambiguous term and when the need for more purposeful and deliberate community involvement was first promoted as being a necessary component of any development project what was labeled as having a participatory element varied greatly (Vakil 1994). White (1996) clarifies that a "fully participatory project" (p. 7) means that local beneficiaries need to be involved in how projects are conceived, managed, and their voice represented in the final decisions. Often times the community involvement in development projects is not effective because it is either included because it is perfunctory in order to follow development work best practices or participation is sought in lieu of meaningful collaboration.

A concept representing an improved form of participation is collaboration. Lassiter (2005), in his book, *The Chicago Guide to Collaborative Ethnography*, offers insights

that collaboration does the following: a. involves a shared power and vision for what will be accomplished, not a vision presented by one to another, b. creates solutions which are "responsive and relevant to the communities" (p. 12), and c. privileges the knowledge of the insider over that of the outsider. Any of these characteristics could be present in a project with participation but what differentiates collaboration is that it is "deliberate and explicit" (p. 11). This means that the research/project considers community members to be collaborators and not simply participants and that they will be engaged in identifying, planning, design, implementation, and evaluation activities from start to finish. This ethnographic concept extends into modern development projects.

Without community participation that is the foundation for designing and implementing solutions, development projects often fail to meet their original goals. In addition to the need for meaningful participation of local counterparts, there is increasing awareness that cultural understanding is essential in development work (Beebe 2004; Bentley et al. 1988; Lewis et al. 2003; Silliman et al. 2011). Too many development projects and technologies in the past two decades have not been used, sustained, or maintained after the development workers leave because the planning, design, and completion of the projects lacked consideration for the local cultural context.

Gaps and pitfalls persist in international development approaches, despite decades of evolving development models and policies. Organizations and institutions still send in outside experts to implement short projects that are of insufficient scale, technical capacity, lack participation and ownership of the community, don't include marginal populations, perpetuate or exacerbate existing problems, ignore the cultural and social appropriateness, and end up falling apart once the outsiders, and their funding, leave. Scholars like Rist (2009) are acutely critical of shifting development models as re-inventions and perpetuation of past mistakes. They call on those involved in international development work to learn from the past and create better strategies which address past failures. This is the broader problem that this research hopes to address, in a small and

focused way, by asking if a RAP can help PCMI students to avoid making some of these mistakes.

1.2. Peace Corps Context

1.2.1. Peace Corps

The Peace Corps is an agency of the executive branch of the United States government. It is a bilateral development assistance institution, meaning it focuses on broad and long-term social and economic development of developing countries (Tarnoff 2004). It defines development as "any process that promotes the dignity of a people and their capacity to improve their own lives" (Kerley and Jenkins 2010, p. 1).

The Peace Corps is one of ten reporting agencies executing foreign aid assistance for the United States government (Foreign Assistance 2016). The Peace Corps' procedures and operation are considered alongside the goals of the nation's other foreign aid programs. Environment is one of nine categories of United States' foreign assistance (Foreign Assistance 2016). The Peace Corps is one of the agencies that receive funding to carry to carry out global environmental programs that focus on sustainability.
The agency is subject to congressional oversight, specifically from the Senate Committee on Foreign Relation's Subcommittee on State Department and USAID Management, International Operations, and Bilateral International Development and the House Committee on Foreign Affair's Subcommittee on Africa, Global Health, Global Human Rights, and International Organizations (Tarnoff 2004). The Peace Corps submits annual budget requests to the Presidential Administration, annual Congressional Budget Justification reports, quarterly reports to Congress, Annual Performance Plans, comprehensive agency assessments, and periodic multi-year strategic plans (Tarnoff 2016).

The Peace Corps program's "unique approach to development to help host countries meet their development needs" (Peace Corps 2015, p.vi) involves 24 months of volunteer

service that are preceded by three months of in-country training focused on building cultural, technical, and language skills development. Over 220,000 Americans have lived and worked abroad as Peace Corps Volunteers (Peace Corps 2016). The Environment sector is one of the PC's six programmatic focuses and at present it engages about 10% of Peace Corps Volunteers. Peace Corps Volunteers (PCVs) not explicitly assigned to work on environmental issues, often have the opportunity to engage in some sort of environmental awareness, education, or project implementation.

The Peace Corps was officially created through the 1921 Peace Corps Act in order to:

> *Goal 1: To help the people of interested countries in meeting their need for trained men and women.*
> *Goal 2: To help promote a better understanding of Americans on the part of the people served.*
> *Goal 3: To help promote a better understanding of other people on the part of Americans.*

But that congressional mandate lacked specific guidance and directives for programmatic initiatives or operational specifics or accountability measures, which has left that task to the eighteen Peace Corps directors the agency has had in the past fifty years.

As an independent agency, the Peace Corps has remained relatively autonomous to changing administrations' priorities and foreign policy objectives of the past five decades. However concerns from members of Congress about the relevance of the Peace Corps program and its placement in countries which are of strategic interest to the U.S. remain (Tarnoff 2011).

Overall, PC policies and operation are subject to the priorities of the United States government and its current administration, budgetary considerations, and trending technological best practices. Peace Corps sectors and assignments are also subject to the

policies of the host countries. For example, the PC Philippines Water and Sanitation sector Volunteers shifted their focus after 2000 primarily towards solid waste management projects because of the passage of Republic Act 9003 (RA 9003) which set country-wide goals for improving environmental degradation due to solid waste practices.

This excerpt from a report on the impact of PCVs from 2010 (Kerley and Jenkins, p. 2) explains how Volunteer programs are developed, including the environmental program:

> *Peace Corps country programs are designed with three stakeholders' considerations in mind: national priorities, local needs, and Peace Corps programming. The intersection of these three "spheres of influence" is where Volunteers are expected to identify priorities, strategies, and activities to develop sustainable local capacity.*

The mission of the PCV is specifically goal-oriented towards working directly with locals to address development problems. In their 2015 Congressional Budget Justification report, the PC explains that Volunteer projects should be "based on community need and are evidence-proven to be most effective at achieving development results" (Peace Corps 2015, p. vii).

One criticism of the Peace Corps in the past decade is that it has somehow fallen short of its potential and needs improvement. "More robust," "more effective," "be bold again," realize the promise," fresh approach," better," "expand," "reform," re-energize," "reinvigorate"-all of these pronouncements spurred discussion about the need for innovation, adaptation, adoption of ideas, and strategies for improving the role of the Peace Corps (Peace Corps 2010, 2011).

Wofford (1966) wrote an evaluation in preparation for the 5th anniversary of the PC which resonates with more recent evaluations at the 50th anniversary mark of the

program. It has remained a continuing criticism of the PC model that sometimes the "skills and the quality of their [Volunteers] performance are inadequate to the needs [of beneficiaries]" (Strauss 2008(b), p. 135). Furthermore to this point, the third finding of Congressmen Ludlum and Hirschoff's 2010 memo to the director of the PC highlights that what the PC does least well, is to fulfill its first goal. However, in their overall assessment of the PC program they point out that none of the most respected experts writing about development assistance even mentions PC. Conversations like these about the effective contribution of the PC has led to changes and shifts in the PC model, including the creation of complementary programs, one of which was the PCMI program. In 2010 the PC submitted a comprehensive assessment and in which it detailed 64 guidelines for the agency's operation; a "blueprint for change" (Tarnoff 2016). This was the precursor to the 2014-2018 Strategic Plan which now guides the Peace Corp's operations.

The PC policy framework defining how environmental development work should be done is broad. The PC's environmental focus is described below (Peace Corps 2016):

> *Volunteers lead grassroots efforts to protect the environment and strengthen understanding of environmental issues. They teach environmental awareness in schools and to local organizations, empowering communities to make their own decisions about how to conserve the local environment.*
>
> *Volunteers also address environmental degradation by promoting sustainable use of natural resources*.

Peace Corps' stated goal for environmental development is, "Improved environmental practices and understanding of environmental issues." The most current policy framework to achieve their development goals establishes strategies for promoting "highly effective technical interventions" and improving Volunteer "training on working with communities and host country partners." And there is explicit direction that

Volunteer community development projects should be "designed and executed alongside local partners" (Peace Corps 2014). This broad mandate for environment sector PCVs elevates the importance of collaborative approaches. A Volunteer cannot help to advance environmental awareness and sustainable resource management if they don't understand the community well.

1.2.2 Peace Corps Master's International Program

In 1987 the Peace Corps initiated the Peace Corps Master's International program (PCMI) in order to recruit Volunteers with higher levels of education and advanced technical skills than the recent college graduates who represent the majority of generalist PCVs. The PCMI program provides Volunteers with the opportunity to pursue a master's degree concurrently with Peace Corps service while enhancing their professional development and exposure to international fieldwork experience. *NOTE: As of 2016, the Peace Corps began the phase out and closure of the PCMI program and the Peace Corps Master's International program is now retired.*

In 1995, the first PCMI program at Michigan Tech was established in the forestry program. As of November 2016, there were nearly 200 graduated PCMI students from ten different programs who had served in 52 countries. Many of the PCMIs students at Michigan Tech, regardless of their specific discipline or sector assignment, engaged in some form of environmental problem solving during their PC service.

The Michigan Tech Mitigation of Geological Natural Hazards PCMI program has long discussed the opportunities and utility of approaching problem solving for environment-human interactions in an appropriate and effective way. The Geology department has had graduate students who have studied social geology. One of the goals of the Partnerships for International Research and Education (PIRE) project-a multi-year NSF sponsored research endeavor which has funded many geology PCMI students-was to encourage students to be more culturally sensitive and develop an appreciation for collaboration.

Faculty advisors and PCMI students at Michigan Tech have experienced challenges and "failures" to implementing sustainable Peace Corps community development projects and/or master's research projects. In response to the challenge of some of these "failed" projects there were efforts in the Geology department to provide introduction and exposure to the benefits of the integration of social science methods into the international development work done by Peace Corps Master's International students. Required courses for PCMI students at Michigan Tech offered introductions to social science methods and cultural dimensions of international engagement.

There is a culture of supporting sustainability and international engagement at Michigan Tech. There is growing emphasis that engineering programs, which are hoping to produce "globally competent engineers" (Downey et al. 2006, p. 4) need to heed the lessons of social science curricula which is at the disposal of learning institutions. This case study of the RAP was designed to explore the value of the integration of social science methods to increase the positive impact of the development work of Michigan Tech's PCMI students.

2. Background

This research was driven by a desire to consider how environmental issues, particularly water problems, are approached and solved in an international development setting by students in the Peace Corps Master's International program, and how the integration of systematic social science methods might affect those approaches and solutions. This section explains the research location for the RAP case study and the environmental and PCMI contexts.

2.1 Research Location

The setting for the RAP case study was a small community in Guatemala where a PCMI student had been serving as a Volunteer since March 2011. The site was chosen for a variety of factors including: the Michigan Tech and Peace Corps Guatemala's collaborative relationship; the PC Guatemala's new programmatic focus on water

conservation (at the time in 2010); and the PCMI student's stage in service and language fluency. The following section provides background on the Peace Corps Guatemala program, the Guatemalan contextual setting, a description of the research community, and an introduction to the water conservation issue that was the focus of the RAP case study.

2.1.1. Peace Corps in Guatemala

The Peace Corps program in Guatemala started in 1963, two years after the Peace Corps began, making Guatemala one of the longest active Peace Corps posts. One of the driving factors for focusing attention on development efforts in Latin American nations was the interest in influencing their development toward democracy and capitalism (an example of the alternative being the Fidel Castro style of governance which was much feared by the U.S. government in the Cold War era) (Meisler 2011).

Volunteers in Guatemala work in the areas of health, youth development, environment, and agriculture. The Michigan Tech PCMI Volunteers in Guatemala have worked on community-based projects focused on volcanic risk communication, environmental education, and ecotourism.

2.1.2 Guatemalan Historical Context

Guatemala has a long and turbulent history of colonialism and outside influence. After gaining their independence from Spain in 1821, the legacies of plantation agriculture-particularly for coffee-corrupt dictatorial leadership, and political, economic and social unrest were established. The United States began to engage with Guatemala at a time when the Cold War and fear of communism, the rising importance of Latin American countries in the world, and the prospect of new markets made Guatemala an interesting prospect for investment and influence (Escobar 1995). While a strong partnership in trade and international assistance now exists, the historical relationship between the United States and Guatemala is complicated and marred by the United States' engagement and influence during the civil war, in the structural adjustment investments and

decentralization strategies of the post-war era, and in the promotion of ideas about globalization, modernization, sustainable development, growth, human development. After the civil war ended in 1996, the peace accords were signed, signaling an end to nearly four decades of social and political unrest, violence, discrimination, inequality, and instability. There were new visions for the country's future, including national efforts to improve education and provision of other public services. Guatemala is not unlike most of its Latin American neighbors. Theirs' is a story of conquest to colonization to independence and to 20th century development. The challenges inherent in this deep rooted history of interaction with the outside world created the social, economic, cultural, psychological, emotional, and political foundations that exist today (Chasteen 2001). What this tangled history means for American Peace Corps Volunteers is that they are serving in a country where there is a familiar story on the national and perhaps local level, which influences the perceived role that they play as development partners from the United States.

2.1.3 Guatemalan Current Situation

Guatemala has a population of over fifteen million people, mostly concentrated in the southern part of the country, making population density a prominent factor for many environmental challenges. Guatemala, at present, is the most populous country in Central America with the second highest population growth rate in all of Latin America, other than Belize (CIA World Factbook). Ethnic complexity and issues of cultural and ethnic identity in Guatemala are important for understanding the contemporary social and political landscape. Guatemala's population is 60-70% indigenous, but they are marginalized in their political and social influence. Guatemala has one of the most inequitable land distribution and ownership systems in all of Latin America (Berger 1997). With subsistence farmers tied to the land, under one of the most inequitable land distribution situations in the entire world, the trickle down to other social and economic inequalities is inevitable. There is considerable inequality in wealth in Guatemala; half of the country's population lives below the international poverty line (CIA World Factbook).

Aside from inequalities in wealth, land ownership, and indigenous influence there are issues of gender access and equality. Ruano et al. (2011, pg. 9) notes that there is an "unequal gender structure present in the Guatemalan society," which creates a difficult power dynamic to navigate when advocating for broad community participation. Further complicating the direct influence of communities, the civil war years discouraged participation and community organization and the legacy of this may still remain an obstacle to implementing participatory development strategies (Ruano et al. 2011).

In the late 1990s there was a period of considerable growth and peace, but after 2000 the country became more turbulent and complicated. Shifting global markets transferred low cost labor industries to Asia and the fall of coffee prices in the late 1990s shook the economic foundation of this "coffee republic" (Chasteen 2001). Organized crime and violence have escalated since 2005, along with the persistence of economic and socio-political challenges. Complicating Guatemala's development further is the prevalence of natural disasters-hurricanes, floods, landslides, volcanic eruptions, earthquakes-that create havoc and destabilization on a regular basis. Globalization has also impacted Guatemalan society, with increased consumption, commercial agricultural exports, and cultural Western cultural influence. The contemporary challenge for Guatemala, as is the case with many developing nations, where Peace Corps Volunteers mostly serve, is to continue to address its national problems - reducing poverty, indigenous rights, food security, rural development, women and minority empowerment, access to education, economic growth and opportunity-while promoting sustainability and responsible development and stability.

2.1.4 San José de Calderas

San José de Calderas (referred to hereafter as Calderas), Amatitlán, in the department of Guatemala City, is the site where the Rapid Assessment Process case study took place. Calderas was the host community for the PCMI student, who at the time of the study had been at his site for eight months. Calderas is located approximately twenty kilometers to

the southwest of the capital, Guatemala City, situated geographically between Pacaya Volcano and Lake Amatitlán, Guatemala's fourth largest lake.

The community is located on the north side of a small lagoon (Laguna de Calderas) which provides water to Calderas and over a dozen other communities for domestic and agricultural purposes. The lagoon faces many of the challenges threatening Guatemala's high volcanic mountain landscape lakes surrounded by dense populations. Inadequate sanitation, runoff from agricultural land, and domestic runoff are factors contributing to increasing nutrient loading which has the potential to cause dead zones and eutrophication, safety hazards, and effects on the aesthetics of the lakes (NASA 2009).

The community of Calderas was established in the late 1800s when land was being re-distributed after the country's independence in 1821. Subsequent generations of the original landholders still hold power over community lands today, with one family being most influential. During the civil war years, Calderas was fairly unaffected by violence. The population is Ladino but there was a strong military presence during those years because of the fear that rebels would use the hills of Pacaya Volcano as bases of operation and refuge. The aftermath of the tensions between the guerillas and military in their area during the war have left a pervasive "live now, forget about tomorrow" community mentality, as reported by several community members.

There are 1,400 residents living in Calderas. Most residents are subsistence farmers and employment opportunities for the youth are minimal. There are three churches and two primary schools. The community has no high school, no central town market (only a few small stores selling sundries), no local government buildings, and no community center. Most community gathering events take place at the schools. The local political leadership and national government, at the time of the study in 2010, were the same party affiliation so hopes were high increased support for projects. There are reported and observed divisions within the community: between the "have" and "have-nots;" the few families who have power and everyone else; the Catholics and the Evangelicals; the people who

are from that place and the ones who have moved there; and the "us" versus "them" of actively engaged community members. There are aspirations for benefiting from being near Pacaya Volcano National Park in terms of tourism potential, but this has not yet been realized. One concern for future development of Calderas and its tourism potential is the health of the lagoon.

The PCMI student's Volunteer assignment was Community Sustainable Eco-tourism; his potential community projects included stove building, ecological education in schools, solid waste education (including lagoon clean-up campaigns), and water conservation.

2.1.5 Guatemalan Water Resource Challenges

Gleick (1998) states that one of the biggest failures of the international community in the 20th century was not being able to provide basic access to clean and safe water to the world's population. The international community has been working towards solutions for improved access to safe and adequate water supplies to the world's population for decades, including the Peace Corps. Despite decades of effort there is still a substantial deficit of those unable to collect and use a basic minimum of twenty liters of water per day, or have access to adequate sanitation, or maintain the health of good quality water resources. Some of this failure is attributed to poorly designed and implemented development projects, sometimes revealing ignorance to the needs and values of the beneficiaries and often highlighting the need for behavior change to accompany physical technical solutions (Yacoob and Whiteford 1994).

The volcanic landscape of Guatemala is rugged and allows for isolation and a challenge to development in the water resources sector. The problems related to water resources in Guatemala are characterized by Water for People (2007, p. 5) as a "silent emergency of access to improved water and sanitation facilities." Guatemalans, both in rural and urban areas, have fairly good access to water and sanitation resources compared with many other developing countries where PCMI students serve (Central Intelligence Agency). However, increased population densities, increased agricultural cultivation, and industrial

development have created an impending crisis for many of Guatemala's shared surface water resources. In Guatemala, leptospirosis, rashes from contact with algae-rich waters, water-borne diarrheal diseases, and Hepatitis are all dangers posed by the lack of development and protection of the nation's water sources (Water for People, 2007). Guatemala's water resources are important not only for drinking water, domestic water use, and agriculture but also for transportation, fish consumption and tourism.

The constitution of Guatemala dictates that the nation's waters are public resources and should be managed responsibly and sustainably by each individual municipality (Ruano et al. 2011). On the ground in small rural communities this usually involves the direct initiatives of local community leadership councils to either manage the system themselves with or without the kind of support they hope to get from the main municipality. These social development councils, or COCODEs, that were established after 1986 and whose role was re-imagined in the 1996 Peace Accords (Ruano et al. 2011). But there are unclear regulations and lack of guidance which governs resource use, like water, and this leads to systems which are stressed or neglected and whose sustainability for future decades is questionable. Often times the efforts to improve or expand the existing systems are met with months or years of work to secure financing, approval, and support.

Many of the rural and semi-rural systems supply water directly to homes, but these systems are limited in storage, consistent flow output to homes, proper treatment, maintenance of infrastructure, and community involvement. This means that often times families, schools, clinics, and businesses have to supplement their water consumption from sources which are less developed and protected, like lakes and rivers. In many communities it is common that the water system has been built with the help of government and/or external actors, i.e. international and national aid institutions like USAID, Peace Corps, the Catholic Church, Spanish institutions and NGOs (Ruano et al. 2011).

As with many global water resources, Guatemala's drinking water sources face potential pressure from changing climate conditions. Land use issues, especially competing land use priorities, are leading to deforestation and erosion due to agriculture. Ruano et al. (2011) claim that within the next two decades almost half of Guatemala's water sources, which populations depend upon for drinking, will be severely compromised, either because of natural rainfall shortages, prioritization for agricultural use, contamination from increased population, or lack of conservation measures. Increased population, global standards of living, and pollution are underlying reasons for the water access deficits (Faruqui 2003). Today, in Guatemala, there are significant disparities of economic wealth and subsequent access to basic services, particularly in rural areas and among the indigenous population. Child mortality, rates of malnutrition, and poverty are challenges which underlie the challenges of improving access to adequate and dignified water resources and sanitation facilities (Water for People 2010).

One substantial development to the advancement of the political will for addressing water and sanitation issues occurred when the United Nations General Assembly and Human Rights Council declared safe drinking water and sanitation as a human right. The defining characteristic of the 2010 United Nations General Assembly and Human Rights Council resolution is that they mandate a shift in addressing water and sanitation needs. The recognition of the human right to safe drinking water and sanitation establishes an obligation for governments to no longer allow provision of water to be a matter of charity. This has elevated the issues of access to water, and improving water infrastructure and management to the national agenda of many nations.

The motivation in Guatemala, however, to assess the nation's water quality and establish strategies for improvements and intervention is complicated by complex historic and contemporary political and social factors. Colonial legacy, civil war, political and economic instability, neoliberal policies, lack of funding for basic infrastructure, decentralization and shifting responsibility of resource management have set the stage for the myriad social issues which demand attention and resources and complicate the

implementation of water development projects (Chasteen 2001). In 2008, an article by a long-standing NGO working in Guatemala, titled, "Guatemala Puts Water on National Agenda" highlighted the major challenges for Guatemala's water development path. These included strengthening policies and governance structures related to water management, addressing the lack of technical, financial, and institutional capacity which are lingering legacies of decentralization, and improving the lack of coordination and participation (Global Water Partnership 2010).

Much of the investment in global water resource development, particularly in the late 1990s and into the new millennium was focused on technological solutions and government management and education (Martin and Elmore 2007). But what has become more apparent is the need to integrate these physical, technical innovations with efforts to understand the "cultural dimensions") of how communities and households manage their water (Ennis-McMillan 2006)**.** Addressing water quality and infrastructure issues needs to involve an examination of changing water use behavior and changing technologies and includes assessment of the supply, demand, and value of the water resources (Johnston 2005; Yacoob and Whiteford 1994).

"In most of Latin America, the cards are stacked against the poor" (MacDonald 1995). This statement refers to deep underlying socioeconomic and political historical factors in places like Guatemala and the challenges they present to anyone interested in working on development projects, especially environmental problems, including Peace Corps Volunteers. MacDonald (1995) issues a warning to avoid band-aid-like projects which provide short term solutions which only "re-shuffle the deck". The Peace Corps program in Guatemala and the partnership with Michigan Tech presented a unique opportunity for PCMI students to serve in communities with pressing environmental challenges and to design appropriate technical and social solutions that acknowledge and incorporate historic and contemporary realities and are based on in depth, rich understandings of the local context.

2.1.6 Conclusion

In the tradition of critically examining the impact of international assistance to developing nations, a number of faculty and students at Michigan Tech maintain a strong passion for the pursuit of better understanding, more thoughtful and meaningful interaction, and implementation of international research and engagement. It is no doubt a multi-disciplinary effort and the PCMI community is particularly engaged and well placed for this kind of study. The shortcomings of approaching environmental problems with a solely technical solution initiated and planned from the outside are known. So it's only natural that there is interest in understanding and possibly influencing the efforts of colleagues at Michigan Tech as they engage in international development contexts. Advisors of PCMI students who are interested in concrete projects showcasing their student's engineering skills, want evidence of the value of integrating social science methods into the approach of their PCMI student's work. In light of the mutual investment and interest of different departments on campus, I set about to conduct the research which is described in the following chapters. I was well placed to implement research on this subject because of my background: that of having served as a Peace Corps Volunteer (Philippines 2006-2008); having worked in international water development for an international non-governmental organization (NGO); being mentored by professors who are interested in looking at this problem; and being well connected with the local PC community.

This research represents a study of one type of approach to environmental problem solving. The research problem for this thesis, as originally conceived, included two related questions: a. how useful is application of specific and systematic social science methods for a PCMI student in helping to identify a community problem and create a plan of action during the initial period of their Volunteer service? and b. is it possible to suggest rapid assessment as a possible methodology to encourage collaborative relationships for addressing environmental problems between the PCMI student and their community? However, as mentioned before, the scope of the research problem changed to more narrowly examine how successfully a RAP could be adapted and implemented

and what strengths and challenges it presented for a development practitioner in a PC setting. In order to try and understand these questions a case study of a rapid assessment of a water conservation problem was conducted in a Guatemalan community where a PCMI student was serving in the first year of his Volunteer assignment.

2.1.7 Thesis Organization

This introductory chapter explained the rationale for this research and its international environmental development, Peace Corps, and participation policy contexts. It briefly explained the RAP methodology that was selected to test through a case study and provided background on the case study site. The remaining chapters of this thesis include a chapter describing the methods used, including a more extensive background on the RAP, the findings of the case study, and discussion of its adaptability and utility for use by a PCMI student. The last chapter presents concluding thoughts on the major findings. Appendix 10 contains the outline of a practical guide for using the RAP that may be completed in the future for a PCMI student or other international development student practitioner.

3. Research Methodology

The research methodology followed a two-part approach. The main piece was a field test of a Rapid Assessment Process methodology in an environmental problem-solving setting with a PCMI student. The other piece involved gathering contextual data of Michigan Tech PCMI student experiences through participant observation and semi-structured interviews. This chapter describes the methodology in three parts: it explains the background and key features of the Rapid Assessment Process approach; it describes how it was adapted for this research and implemented as a case study in Guatemala; and finally, it explains the other phase of background research with the Michigan Tech Peace Corps community.

3.1 Rapid Assessment Process (RAP)

Rapid Assessment Process is a collaborative inquiry-based research strategy used to gain a deeper understanding of a local context. It is a contemporary iteration of a succession of ethnographic research methods characterized by their rapid, local, and participatory approaches. The Rapid Assessment Process approach or RAP (used hereafter to reference this specific rapid assessment model), established by James Beebe, is defined as:

> *An intensive, team-based qualitative inquiry using triangulation, iterative data analysis and additional data collection to quickly develop a preliminary understanding of a situation from an insider's perspective.*

James Beebe (2001) synthesized the historically varied application of rapid ethnographic methods and created this particular methodological approach, for which he set out the guidelines for its appropriate and effective use. It is the primary source of RAP knowledge and techniques used in this research because it draws on the experiences of decades of rapid assessment practitioners' lessons learned and best practices in the application of the methodology. This section presents the basic tenants of rapid

ethnographic research and the evolution of the methods which led to Beebe's RAP approach.

Rapid assessments are distinct in that they include these core components: a. focus on specific problems, b. require the systematic collaborative perspective of the local people in the community throughout the process, c. use a mixed methods approach, d. provide summaries and conclusions based on trends and themes, and e. represent one element of problem assessment, not used as a sole means of discovery (Beebe 2001; Hall et al. 1995). Rapid assessment design relies primarily on qualitative data collection methods and is not designed to simply be a tool to collect information to use to get to know a target community better. It is, rather, a structured and disciplined way of examining a community critically and holistically in order to search for answers to a predefined problem. It is important within this research to emphasize the distinction that RAP is designed not just to gather facts and information but to be a *process* of discovery and understanding of explanations conducted in a short period of time in a team setting.

Rapid assessment methodologies have their foundations in ethnographic and anthropological traditions, but the defining characteristic is that they modify these methods in order to be implemented in circumstances where time and financial resources are limited but the integrity and value of social science methods are still maintained. RAP builds on older models of participatory and action based research. In the 1970s when mainstream international development was shifting focus from top-down, large scale projects there was increased attention to inclusion of local participation and of differentiating development approaches based on local contexts. Development agencies and practitioners recognized the benefits of incorporating the skills and insight of anthropologists who live for extensive periods of time in communities and their subsequent insight about persistent development problems, especially ones related to environment, natural resources management, and poverty. Rapid Rural Appraisal (RRA) was a pioneer model in the 1970s created to address some of the preliminary concerns directed at existing development models (McNall and Foster-Fishman 2007). An

engineer or developer was improving their approach to designing a solution to an identified problem by incorporating RRA techniques of researching first-hand the local context. But they were still acting as an outsider; the problem was still being defined by the outsider with the solution being prescribed to the beneficiaries. This was then replaced by Participatory Rural Appraisal (PRA), which made the role of participation by locals more prominent and central to problem-solving approaches.

Rapid assessment approaches vary in their definitions, applications, strategies, and objectives but they are all based on common principles. Examples of the use of different settings in which rapid assessments have been used include: HIV/AIDS research, World Health Organization studies of health care facilities, rural assessments of agricultural practices and natural resource management, responding to crisis and humanitarian emergency situations, and addressing public health issues in developing countries (Anker et al. 1993; Beebe, 2004; McNall and Foster-Fishman 2007; Needle et al. 2003; Trotter et al. 2001; WHO 2010). Appendix 1 provides a selective overview of different types of rapid assessment methods and their distinguishing characteristics.

James Beebe's RAP enhances and is enhanced by these other rapid action research approaches (Beebe 2001). The core features of James Beebe's RAP, which are essential to include no matter what problem area or context the methodology is applied to or whom it is being conducted by, include: team collaboration, problem-driven and complementary to existing efforts and knowledge, rapid implementation, validity, flexibility, and action-oriented focus. These are not exclusive to RAP, but are a synthesis of best practices learned from decades of implementing a long line of related research techniques.

Collaboration is the most important core feature of rapid assessment (Beebe 2004; Chambers 1994; Yach, 1992). The RAP research is designed, conducted, and analyzed as a multidisciplinary team, ensuring that the local perspective is driving the research agenda, and fundamental when the outsider's role as a partner and not an expert, needs to be reinforced (Beebe 2001). This allows each member of the research team to examine

their role in the process and establish a co-understanding of the situation and the solutions in order to improve the viability and success of proposed projects (Lassiter 2005).

The RAP approach is explicitly adapted to the identification of a specific problem or question in a particular context. The rapid assessment process is considered an initial investigation whereby the results ideally lead to identification of further research needed, design of solutions, and/or implementation of activities to address the problem being investigated. It is not meant to be a standalone process, but rather one that complements other efforts at understanding a particular problem already identified, builds on any existing efforts or knowledge, and yields ideas for future inquiry and action (Beebe 2001, Needle et al. 2008).

A RAP is by definition bounded by a limited timeframe. The minimum time required to conduct a RAP is four days and longer RAP investigations may last up to several weeks. Whether the research period is five days or three weeks depends on the context and the question, but the appropriate adaptation of methods to the time period should yield sufficient insight of the local perception of the problem to proceed with additional research or start implementing activities (Beebe 2001).

In order to establish the validity of the results in a RAP, multiple methods are used to provide triangulation of the data collected (Beebe 2001; Needle et al. 2008). The use of "complementary methods" (Needle et al. 2000) should be thoughtfully selected. This step provides reinforcement and confirmation of the findings and is imperative for this type of rapid research to be scientifically robust. Environmental problems, such as water resource management, are complex problems, and so understanding different perspectives and interpretations of a problem is crucial for any next steps aimed at mitigating the problem.

The Rapid Assessment Process must be treated as a flexible investigation. Although the basic framework for RAP research design is predetermined (for example the primary use of semi-structured interviews), RAP is intended to give the RAP team the ability to adapt

approaches and strategies as circumstances and evaluations dictate during data collection. The specific methods which are selected for a particular rapid assessment depend on what question is being asked or problem is being addressed and what type of cultural context the assessment is being applied to (Beebe 2004; Needle et al. 2003; Needle et. al 2008; McNall and Foster-Fishman 2007; Trotter et al. 2001). A general rule for rapid assessments is that data collection continues until no new information is presented from respondents who have varied perspectives (Beebe 2004; Needle et al. 2003; McNall and Foster-Fishman 2007). Thus the number of methods used depends on the local context and time constraints. Iterative analysis is a critical feature of a RAP investigation, meaning the RAP team is analyzing data daily and adapting their efforts and strategies accordingly. A planned method may be modified, or changed entirely, if analysis of findings on day two requires a different approach to validate that finding.

Another core element of rapid assessments is the ability to put "actionable information in the hands of decision makers at critical times" (McNall and Foster-Fishman 2007). Decision makers can include local government officials who are working on community policies and projects or mothers who are taking care of their household management and children's behavior development. What is distinctive about RAP, compared to its predecessors, is that is goes beyond analysis or appraisal and incorporates in-the-field action planning and implementation (Beebe 2001; Chambers 1995).

Rapid research strategies, including RAP, are not immune to criticism of their limitations and possible pitfalls. There is a fear that rapid assessments might produce conclusions which may represent misunderstandings (Harris et al. 1997). One of the reasons anthropologists and ethnographers invest so much time studying a community is to minimize these misunderstandings. If the research team in a RAP, for example, is not able to spend time clarifying interview topics with a key informant, or has not allowed for enough time to conduct a follow up interview, they may come to a faulty understanding about the information they gathered. It should not be misconstrued when doing a RAP, that because it is rapid the work can be done in a rushed manner where biased, haphazard

application of the methods are substituted for diligent adherence to the principles of sound social science research (Beebe 2001; Chambers 1994). The irony of the RAP is that it is best used in situations where time and resources are limited. However, these limitations could lead to the misuse of the research process by not appropriately planning and managing the resources and time that are available.

Rapid assessment researchers must also take care not to make promises which may not materialize (Beebe 2001). A RAP is used to understand a problem in order to initiate action or further research, not to deliver an immediate solution. The way a RAP research team presents themselves and formulates their research design will impact how their research is perceived and what expectations are established. RAP teams, especially the outside members, should be cognizant of their role in creating or perpetuating situations of alienation or false empowerment (Beebe 2001). Ignorance of power dynamics and the potential negative outcomes of subsequent interactions and solution designs have a long history in international development engagement. The RAP team must represent real participation and collaboration versus a token demonstration of the inclusion of the best practice of participatory research.

RAP is not an appropriate research strategy to use when statistical significance based on numbers and percentages is sought (Beebe 2001). The RAP produces primarily qualitative results that are analyzed and acted upon immediately in the field. RAP results can assist with the formulation and design of quantitative data gathering techniques, but will rarely produce any on its own.

James Beebe directly addresses another criticism for rapid assessment strategies, stating that there is as of yet a "lack of confirmation of RAP findings" and that the research process "lacks credibility with some" (Beebe 2001, p. 15). Robert Chambers (1994) also recognized that the results of rapid assessments were under-published and reviewed by peers, and Chambers also worried that practitioners also weren't critically reflecting on their own results and sharing lessons of mistakes. The lack of criticism of and support for

rapid assessment approaches can only be improved by further application in the field and presentation of results.

3.2 RAP Case Study

3.2.1 RAP Adaptation

Review of RAP literature suggested it would be a suitable method for PCMI students to use in the field. The RAP was chosen because it involves a comprehensive set of ethnographic methods in a process-oriented and systematic approach. It is ideally suited to a situation where an identifiable problem exists and where resources and time are limiting factors. PCVs working in sectors with environmental job assignments are almost always guaranteed a definable problem upon arrival at their site, whether it is overfishing, natural hazards, lack of waste management, or contamination of communal water sources. And even if their designated sector is not explicitly environmental it is likely there will be an opportunity to work on secondary projects addressing environmental challenges. PCVs serving in a country for two years are limited by time, especially PCMI students who have the added commitment of conducting their master's research while serving abroad. Aside from the opportunities to apply for small project grants or raise funds in the United States, there are very few financial resources for Volunteers to use for community projects. With those criteria of limited time and resources met, the RAP approach may be a good tool for PCMI students to utilize.

Another significant reason for the RAP being chosen for this research was its particular emphasis on team collaboration. In response to the literature on evolving international development models and the anecdotal experiences shared by PCMI students at Michigan Tech, the need to find a social science methodological approach which emphasized collaboration with locals was paramount.

The next step was to adapt the RAP to the particular research context of the case study site in Guatemala, because a traditional RAP did not fit the timeframe, resources,

expertise or reality of a Peace Corps Volunteer assignment. The design of the RAP followed the guidelines established by James Beebe's *Rapid Assessment Process: An Introduction* (2001), with particular attention paid to making sure all of the core features were included in the adapted design. These six core features, explained in the previous section are: team driven, driven by a problem and complimentary to existing efforts, rapid implementation, validity, flexibility, and action-oriented focus.

3.2.2 RAP Location

Two PCMI students and their respective communities were considered as possible case study sites for this research during an assessment trip to Guatemala in January of 2011. The case study was ultimately carried out in Calderas because of a good mix of features: the environmental problems associated with the lagoon, specifically focused on water resources, the PCMI student's language skills, the PCMI student's stage in service (being within the first year), the student's sector assignment (environmental education), and the ease of logistics.

3.2.3 RAP Team Selection

The first step of implementing the RAP case study was to identify a RAP team. One suggested strategy is to identify those community members who have deep knowledge and understanding about the issue to be investigated, in this case water resource use and management within the community. If a local water committee (in Guatemala called a CAAP) existed in Calderas that would have been an ideal set of individuals to incorporate into the RAP team, but because there was not, the RAP team was chosen a different way. The PCMI student suggested two young community members with whom he had established relationships, and who had enough time available to devote to intensive team-based investigation. The RAP team was multidisciplinary including a teacher, a farmer and business administration student, the PCMI geology master's student, and me, the social science master's student. There were two male and two female members of the RAP team, two insiders and two outsiders. In addition to the formal RAP team, there was active participation by the PCMI student's mother. She took part in almost all of the

training, planning, and analysis activities and lived with the PCMI and researcher for the entire two week duration of the RAP implementation.

3.2.4 RAP Problem Identification

The next step of the planning process was to establish what specific problem the RAP was going to look at and to determine how it fit into existing efforts in the community. The RAP problem was defined as follows: What are the perceptions of contamination and conservation of the lagoon? And how do these perceptions intersect with how people use water and with their attitudes and behaviors towards community water resources? This focus was chosen based on conversations between me and the PCMI student and it was informed by several conversations with community members that the PCMI student knew well. In Calderas there were existing efforts to engage the community in water conservation awareness, including: collaboration with the national government and a local university to engage in water quality monitoring certification; water filter distribution and education about safe drinking water during post-eruption efforts from Pacaya Volcano in May of 2010; university students engaged in a three-year program focused on communicating public health issues including workshops on water conservation; a master's student's comprehensive study of the lagoon in 2007; and the PCMI student had engaged local youth in one lagoon cleaning campaign.

3.2.5 RAP Implementation Overview

In January of 2012, the researcher returned to Calderas and the RAP was implemented over a span of nineteen days. The team training, preparation, discussion and analysis and evaluation of all methods took place at the home of the PCMI student. James Beebe's *Rapid Assessment Process: An Introduction* (2001) and the World Health Organization (WHO) *Rapid Assessment and Response Technical Guide* (2001) were used during the RAP as guides for the adaptation of methods and analysis.

The original working plan for the RAP was to complete (at a minimum) 8-10 interviews, 1-2 focus group discussions, household assessments, and participant observation. These

methods were prioritized to ensure triangulation of the data being gathered; that information collected, for example, in a focus group discussion could be verified and validated by data collected in participant observations and semi-structured interviews. The methods used were also implemented in a way to build on the knowledge being gained daily and to fill in apparent gaps. The PCMI student and I also made a list of other possible methods for an investigation about community water resources including: a water management inventory, review of relevant management documents, water use inventory, water quality testing, water resource mapping, transect walks, seasonal and daily calendars, and photo documentation. The RAP team adhered to the general work plan for the RAP, but daily iterative team analysis allowed the RAP investigation to be flexible and several additional methods were used. Flexibility was important for this investigation because the RAP team members were engaged in other community activities each day aside from their commitment to the RAP case study.

Table 3.1 lists all of the methods that were used during the nineteen days of RAP work. A detailed schedule of the RAP methodology is presented in Appendix 8. The subsequent paragraphs describe each method used in the RAP.

Table 3.1 RAP activities implemented during the case study

RAP team training
Focus group discussion
Semi-structured interviews
Household surveys
Direct observation
Participant observation
Community mapping
Water testing
Participatory photography
RAP team analysis
RAP evaluation

3.2.6 RAP Training

The first three days' activities involved: orienting the team to the RAP, introductions to ethnographic methods and social science concepts, selecting the outline of methods to use, setting the schedule, introduction to note-taking and agreement on a common strategy for data collection and display, introduction to data gathering equipment, i.e. the digital camera and tape recorder, consensus of the environmental problem to be investigated, and agreement on compensation for the local RAP team members. All training and preparation was done at the home of the PCMI student. During the preparation time the process of obtaining oral consent from participants was discussed, along with how to present the RAP investigation to the community so as not to raise expectations. The term *sondeo,* in Spanish, was chosen as the locally appropriate term to refer to the RAP. The RAP question to be investigated was set as: How community perceptions of water contamination and health of the lagoon compare with how people use water and engage in conservation.

3.2.7 RAP Method-Focus Group

The focus group discussion was the first method carried out after the initial days of training. The objective of the focus group was to gather a group of individuals from the community to learn about perceptions of contamination, conservation, and water use, and use that information to inform the design of subsequent methods. Another goal of the focus group was to corroborate the environmental problem statement which the RAP team had identified. Although there were ten participants confirmed, on the day of the focus group only four females attended-two middle aged women and two teenagers. There were three toddlers and infants also present. The guiding questions were determined by the RAP team the day before the focus group was held. The focus group, convened at the school lasted approximately one hour. Refreshments were provided to the participants.

3.2.8 RAP Method-Interviews

The original goal was to have eight to ten interviews conducted with a variety of community members who represented the diversity within the community. We differentiated this goal further into eight to ten community member informants and three to four community member key informants. For the purpose of this case study, "key informant," or *informantes clave* in Spanish, was used to reference a community member that would likely have a deeper knowledge about the issues of water, health, and challenges affecting the community. The RAP team completed a total of twelve semi-structured open-ended interviews, nine with community members and three with key informants. The key informants were the community health worker, the water engineer, and a member of the town council. The community interview respondents were identified based on criteria that would provide a diverse cross-section of the community, either spatially or socioeconomically, or both. The criteria were age, proximity to the lagoon/geographic location, gender, and general socioeconomic level (low, medium, or high); all based subjectively on the opinion of the local RAP team members (see Table 3.2 below).

The RAP local team members used cell phones or made house calls to solicit participation. All interviews were conducted by the entire RAP team. Each interview exceeded one hour, and all but three were conducted in the homes of the respondents. Prior to the start of each interview, all interviewees were read the oral consent form (see Appendix 6) and they offered verbal confirmation of their consent to participate in the interview and to have their photo taken. All participants were guaranteed copies of the photographs that were taken of them. The structured questions were selected after the focus group discussion, but they were added to over the course of the RAP as themes emerged and further insight and verification was sought. There were questions about how people used water, both at home and directly at the lagoon, what people considered contamination, what they thought about the health of the lagoon, if they engaged in conservation activities, and who they felt was responsible for taking care of the lagoon. Each interview was summarized and analyzed. A data display was created on the wall in

the PCMI student's home, highlighting the main points or themes and interesting lessons learned from each interview

Table 3.2 Demographic profiles of the RAP case study interview respondents

Respondent	Gender	Approx. Age	Socioeconomic status	Location	Occupation
1 E1a	F	~60	Low	West side of lagoon	Farmer
2 E1b	M	~60	Low	West side of lagoon	Farmer
3 E2	F	~40	Medium	Uphill; west side	None-Mother
4 E3	F	~30	Medium	West side of lagoon	None-Mother
5 E4	F	~20	Low	Center of lagoon	None-Mother
6 E5*	F	~45	High	East side of lagoon	Shopkeeper
7 E6	M	~35	Medium	Uphill; center	Water technician; COCODE member
8 E7	F	~20	Low	East side of lagoon	None-Mother
9 E8	M	~50	High	Uphill; east side	COCODE board member
10 E9	M	~50	Low	Center of lagoon	Farmer
11 E10	F	~40	Medium	West side of lagoon (health center)	Community health worker
12 E11*	F	~40	Low	East side of lagoon	Farmer; business owner
13 E12	F	~55	Low	Uphill; center	None-Grandmother

*These interviews included other family members/individuals present who actively contributed to the discussion

After all of the interviews were completed, the photographs of the interviewees were printed and personally delivered by members of the RAP team along with a small token of appreciation for their participation-a package of fruit and baked goods. The follow-up

visits by the RAP team (not always completed by all four members) also included giving the respondents the results of their household water test (see section 3.2.8 below for explanation of this data collection element). During these visits the participants were given the chance to ask questions and the RAP team asked follow up questions that came from the team's analysis.

3.2.8 RAP Method-Participatory Water Testing

The RAP team used 3M™ Petrifilm™ E. Coli/Coliform Count Plates to test the water sources at the sites of each of the interviews. The 3M Petrifilms™ were procured directly from the 3M Company by Michigan Tech's Engineers Without Borders chapter and given to the RAP research team. The 3M Petrifilms™ - used predominantly in food safety testing - provide an easy way to inoculate, incubate (on the body without the need for a laboratory or electric incubator), and analyze the presence and concentration of E. Coli in a water sample within 24 hours. This technique was included in the RAP because of my extensive background using them in community level water testing. It is based on the Portable Microbiology Laboratory (PML) program developed by microbiologist Dr. Robert Metcalf of California State University, Sacramento and co-founder of International Water and Health Alliances (IWHA). The PML is a water testing kit that incorporates existing bacterial testing equipment in a simple, effective, and low cost way. The objective of the PML is to empower local people to monitor their water quality without the use of formal laboratories-to have fully participatory water testing. The two complimentary tests are, one qualitative and one quantitative, respectively, the Colilert® ten ml presence/absence test (IDEXX, Westbrook, ME) and the *E. coli*/Coliform Count Petrifilm™ (3M, St. Paul, MN) which samples one ml of water. The PML measures the risk of the water source for fecal contamination, translating directly to the risk of disease. The results compare to the standards for drinking water quality established by the World Health Organization. More important than being a definitive indicator of the risk of *E. Coli* contamination and corresponding risk of getting sick from consumption, using the PML is meant to be a powerful teaching and mobilizing tool. For this RAP case study, only the Petrifilm™ component of the PML was used because of lack of resources, but

the full PML could certainly have been used. All water samples from household residences were inoculated by the RAP team at the time of interviews and incubated by the interviewees.

3.2.9 RAP Method-Household Assessments

An informal household assessment method was used to gather baseline information on household water use. These were informal assessments rather than rigorous formal surveys. The surveys consisted of 24 questions, and a total of 24 households were included (roughly 10% of the total 271 households in the community). A list of possible standard questions developed from the *WaSH Field Guide: A Governance Approach to the Delivery of Water, Sanitation and Hygiene Services* (2009) from the Philippines were discussed. From these two sets of questions, twenty-four were chosen. The questionnaire began with demographic questions of age, number of persons in the household (specifying children, adults and sex), and the main income generating activity of job of the household.

Nine young adults from the community, five females and four males, conducted the household assessments, being selected by the local RAP team members based on their geographic distribution and their relative availability to participate and perceived responsibility. The two local RAP team members led the training for the household survey activity. The nine participants were divided into four teams. They discussed techniques for interviewing, gave them team collection assignments and deadlines (two days to complete the surveys), taught them how to use the cameras, discussed how to document and take notes, and distributed the tools for data collection (surveys, clipboards, notebooks, pens, cameras). The surveyors did not conduct any water testing, but they were exposed to the Petrifilms™ by the RAP team members as a way to engage them and put the surveys into the larger context of what the RAP team was doing with the other methods. All surveyors signed consent forms for their participation in the research and were trained to collect verbal consent from every household surveyed. Each survey team had an introductory statement and a request for oral consent that they read at

each house they approached. If the homeowner was amenable to participating, they asked them the 24 survey questions and recorded the responses. They surveyors took several photos at each home, of what the household requested, e.g., the house itself, a feature in the yard, or themselves and these photos were developed and delivered to the households after the RAP was completed. The data were entered into a spreadsheet and graphs of thirteen of the questions were made for possible reporting.

3.2.10 RAP Method-Participatory Photography

The participatory photography activity involved using four disposable cameras to engage four young community members to capture images representing their perspectives of four topics related to the lagoon. The objective was to understand how people in Calderas use water and their perceptions of the lagoon. Four broad categories: images of contamination, images of how water is used, beautiful versus unattractive places, and examples of conservation behavior. Instructions were given to the participants in a general way, so as not to influence their interpretation and data collection. The participants were selected based on personal acquaintance with the local RAP team members and their physical location within the community, representing four distinct areas. The defining criteria for their selection, was that they had to be "available" and "interested in participating in this kind of activity." Each participant was instructed to take ten photos of the topics and five personal photos which were given to them after analysis was completed. The RAP team then sorted, displayed and analyzed the photographs.

3.2.11 RAP Method-Direct and Participant Observation

Direct observation and participant observation were carried out by the RAP team every day. The team monitored the water-related activities taking place around the PCMI student's home where the RAP team assembled every day. The PCMI student's house was bordered by two access points to the lagoon, where bathing and clothes washing occurred daily and where fishing and animal watering could be seen. The PCMI student's mother (the honorary RAP team member), who was visiting during the case study,

reported and recorded her observations daily. Other direct observations made individually were noted in each RAP team member's notebook and sometimes discussed as a team. Because every RAP member had to use water daily, there was constant opportunity to gather participant observation data. RAP team members were expected to make and record observations during the RAP project timeframe during the times they were not officially working together. There were three distinct instances of participant observation. These included attending a meeting of the Consejo Comunitario de Desarollo (COCODE or community development council) discussing water development and management plans, attending a workshop about water conservation, and paddling across the lagoon to assist a community member with algae removal.

3.2.11 RAP Method-Mapping

Community mapping was not a predominant method used for this RAP case study. However, a preliminary community exercise was done on the first day of training to make observations, practice note-taking, identify specific observable issues, and organize the community's population distribution which was later used to determine targets for the interviews and household assessments. Each RAP team member created a community map in their own notebooks during this exercise. The RAP team did map the interview locations, taking GPS points of all interview sites and corresponding locations of the water tests, in order to create a spatial reference of the distribution of the respondents. The plan was to create a map as a visual reference when presenting the findings of the RAP to the COCODE.

3.2.12 RAP Method-Team Evaluation

RAP team analysis and evaluation were conducted each morning before the day's RAP data collection commenced. There was an original plan to debrief and analyze the day's findings each evening, but this happened infrequently after the first few days due to conflicting commitments. The PCMI student and I did manage to assess each day's approach, lessons learned, and challenges every evening. The RAP team, referencing the methodologies from the WHO guide and the Beebe book, created a format for processing

all of the data collected and synthesizing it to identify general themes and places for action and further investigation. The team analyses and planning processes were documented in the team's notebooks and on a tape recorder. In addition, every part of the process was displayed in visual form on the walls of the RAP work space. Data display is addressed by Beebe (2001) and Miles and Huberman (1984) as important to the processing of rapid ethnographic approaches. So the RAP team decided it would be most beneficial to use the space available to post as much information from the data gathering as possible where it could be easily seen and used continuously. This visual display strategy made every step and method transparent and easily accessible to the RAP team at all times. Photo documentation of all RAP data displays and scans of all RAP team notebooks were collected. I kept three different forms of notes during the case study research. The first was a primary notebook for all personal observations and interview notes. My strategy was to make jottings using a two column system so that the right hand column could be used later for coding, making additional notes and reflections, and for identifying tasks to be completed. The researcher also had a personal informal journal (referred to as a RAP Diary) for reflections and brainstorming. The RAP team had a document for daily analysis and chronological documentation of the RAP field testing such as the RAP logbook prescribed in James Beebe's RAP reference.

The final activity for the RAP team was an overall analysis of the data collected from all of the methods used in order to identify patterns and trends related to the original problem being investigated and to discuss actionable next steps. The RAP team synthesized all of the displayed data from the different methods used. The team then identified key findings from all of the data gathered. These were summarized and a plan for future action and next steps was drafted. We used the WHO *Rapid Assessment and Response Technical Guide* on rapid assessment techniques as a model for evaluating the RAP methods. It includes three elements: a. what was a key finding, b. what methods provided that information, and c. general responses, or conclusion, to the finding (See Appendix 9). Finally, there was discussion about the validity of the methods, what was

learned and how it helped to answer the RAP question, and what possible actions might be taken to address the major themes identified.

3.2.13 RAP Method-Assessment

Once the RAP team's assessment of the methods and the data collected was finished, the PCMI student and I evaluated the process of conducting the RAP as a case study. This occurred on the final day of field work and there was one follow up evaluation I was no longer in country. The PCMI student and I followed the same pattern of assessment as the RAP team when they analyzed the RAP methods, but with more attention to thinking about how the process unfolded, what was successful about a particular decision or what was not, and what could have been changed or improved. This analysis was applied to every method used during the RAP field work, from training to interviews to analysis: a. what did we do? b. how did we do it? c. how did it go? and d. what did we learn? The goal of this evaluation was to more deeply examine the questions of how feasible it was to conduct a RAP in a PC community and whether or not there was utility for a PCV to implement a RAP.

3.3 Michigan Tech Participant Observation and PCMI Student Interviews

The other phase of research involved gathering contextual information about the PCMI student experience from the Peace Corps community at Michigan Tech. Semi-structured, open-ended interviews were conducted with the all nine PCMI students from Michigan Tech who had served as PCVs in Guatemala up to March 2011. These formal interviews were accompanied by extensive participant observation over the course of four years in the PCMI community at Michigan Tech. Questions and open-ended conversations were intended to assess the potential utility of a RAP methodology in the Peace Corps setting. This phase of research sought preliminary perspectives, based on the experiences of the PC community, on common or divergent challenges, strengths, and strategies of engaging in collaborative development work with local communities. This understanding was

important for assessing the RAP's overall utility as a beneficial tool for PCMI students from Michigan Tech.

3.3.1 PCMI Student Semi-Structured Interviews

The nine PCMI student interviews were limited to individuals with a common experience: one type of scientist (geologists), one country (Guatemala), and one MTU PCMI program (Mitigation of Geologic and Natural Hazards). The objective of these interviews was to acquire a preliminary understanding of their project and research experiences, and the PCMI students' efforts to utilize social science methods. Insights from the interviews highlighted some of the following: a. the PCMI student's experiences integrating into their community, b. exposure to and use (or non-use) of social science methods, c. experiences identifying counterparts and working with community members, d. identifying issues or problems, e. creating project ideas, f. implementation outcomes, g. expressed challenges and frustrations, and h. ideas about what could have strengthened their approach to their community development projects.

The nine respondents for the semi-structured interviews were initially contacted by email. This email explained the research project and requested their participation as interview subjects. After receiving positive responses from all nine, interview times were scheduled, and human subjects research consent forms along with the interview questions were sent to each respondent. Two interviews were conducted in person and recorded with a handheld tape recorder. The others were carried out using the Skype™ program to conduct the interviews and the Pamela™ program to record the interviews. The interviews consisted of ten general question areas focused on: training received at Michigan Tech and from PC in Guatemala, activities during the first three to six months of service, community project descriptions and identification of community needs, relationships with advisors and counterparts, and master's thesis research (see Appendix 4). The questions chosen were broad and open-ended, aimed at understanding how PCMI students went about understanding their PC communities and how they developed their community projects.

The nine interviews were all successfully completed with minimal technological interference and each averaged seventy-five minutes in length. They were recorded, transcribed, and coded for themes and patterns. The basic profiles of the nine respondents are represented in Table 3.3. Their ages, site characteristics, primary jobs, and exposure to training and use of social science methods varied. All PCMI students interviewed successfully completed their PC service and all but one, at the time this research phase was finished, had completed their master's degree program. They all completed community development projects (SPA) sponsored by USAID. I had good relationships with all of the respondents and because I am also a RPCV, the interviews were very easy to conduct, with candid responses, fluid conversation, and full cooperation.

Table 3.3 Demographic profiles of the PCMI student interview respondents

PCMI	Gender	Length of Service (months)	Type of site*	Primary job	SPA grant project	MTU Social Science Courses	Used Social Science methods during service
1	M	27	2L	EE	Y	N	Y
2	M	27	1M	EE	Y	N	N
3	M	28	2L	ET	Y	N	Y
4	F	26	2L	ET	Y	N	Y
5	F	28	1M	ET	Y	Y	Y
6	F	25	3L	EE	Y	N	Y
7	M	27	2L	EE	Y	N	Y
8	F	27	1M	EE	Y	N	N
9	M	27	2M	EE	Y	Y	Y

*Type of site: Rural-1, Semi-urban-2, Urban-3; Ladino-L, Mixed-M, Indigenous-I; Primary job: EE-Environmental Education, ET-Ecotourism

3.3.2 Participant Observation in Peace Corps Community

A considerable amount of participant observation occurred between the fall of 2009 and the spring of 2015 within the Michigan Tech PC community. The PC and PCMI communities at Michigan Tech are close-knit and provide weekly opportunities for access and interaction. Through monthly PC dinners, theses defenses, directed conversations with students and advisors, seminars and colloquiums, teacher training workshops for PCMI students prior to their service, formal classroom discussion observed, community PC presentations, and casual conversations at social events a wealth of data was collected about PCMI experiences at Michigan Tech.

3.3.3 Human Research Subjects Application

An application to the Institutional Review Board (IRB) was submitted for the use of human research subjects for both phases of this research (see Appendices 5-7). The application, titled "Investigating the Development Work Experience of Peace Corps Master's International Students in Guatemala Using: A Case Study Rapid Assessment of Community Water Issues," identified potential risks to the research subjects, the anticipated benefits of their participation, an explanation for the importance of what the researcher was hoping to learn from the subjects, and the process for obtaining informed consent from all participants. The application was approved by the Michigan Tech Office of Compliance, Integrity, and Safety on November 29, 2011.

4. Research Findings

4.1 Introduction

This chapter presents major findings addressing the research question of whether a RAP methodology is adaptable to an environmental problem solving, international development context and useful by a particular type of development practitioner, a PCMI student. This was done by analyzing the results from a two week field experiment implementing a RAP with a PCMI student in Guatemala along with contextual information gathered from the Michigan Tech Peace Corps community. The results are organized into three sections (see Table 4.1 below) detailing the following: a. what was learned about the strengths and adaptability of the RAP in a PC situation, b. what potential utility it has for PCMI students, c. and what challenges face its adoption for PCMI students.

Table 4.1 RAP implementation strengths and challenges as identified from the RAP case study and interviews with Michigan Tech Peace Corps community members

Strengths of the RAP Application in a PC Setting
1-The RAP creates opportunities to analyze and understand community dynamics in a systematic and holistic way.
2-The RAP approach is an effective way to investigate local environmental problems.
3-RAP methods encourage gathering the perspectives of marginalized populations in the community, addressing a common development pitfall.
4-The RAP provides context and a structured opportunity to use social science tools.
5-The RAP approach promotes and elevates the importance of team-based work and participation.

Beneficial Elements of the RAP for PCMI Students
1-RAP could help address the difficulties of comprehensively identifying and understanding community needs.
2-RAP promotes a bottom-up approach to project design.
3-There is a general willingness to use social science methods.
Challenges to implementing and benefiting from the RAP
1-RAP is not effective a standalone activity.
1-Identifying "counterparts" to work with is a potential barrier; this already being a significant challenge to PCVs' community development work.
2-It may not be feasible to conduct RAP in its traditional form; therefore it must be modified for a PC setting.
3-PC life and obstacles make the adoption of a structured activity challenging.
4-Despite training and introduction, existing resources are not fully utilized.

4.2 Strengths of the RAP Application in a PC Setting

Overall, the RAP is a viable method for development practitioners in a PC setting, providing utility to understand a community and its environmental problems with local counterparts in a purposefully systematic and collaborative way. This study found no major barriers that would prohibit a PCMI student from using this methodology. Rather it was a successful test of its use in a PC setting. It appears to be a beneficial tool that a PCMI student can employ, that complements their other preparation and training. The following points highlight the strengths identified with the RAP approach in relation to the adaptability and usefulness to a PCMI student in the field who is working on environmental problem solving.

4.2.1 RAP Application Strength 1

The RAP creates opportunities to analyze and understand community dynamics in a systematic and holistic way. The RAP approach challenges students to go beyond assumptions, impressions, superficial understanding, and passive social data gathering.

This is evidenced by the effectiveness of some of the key components of the RAP as applied in the case study, namely the semi-structured approach to interviews, use of visual displays, focus groups, and household assessment methods.

The **semi-structured approach to the interviews** was beneficial because it allowed for adaptation and a deeper exploration of the environmental problem of a shared lagoon resource. Over the course of the two week implementation, more and more questions were added to the interviews and in the end there were still questions which hadn't been included that could have been very informative. For example, on the final day of analysis the RAP team commented how no respondents had been asked about their *pilas* (household sink stations) namely, how long they had them, what prompted them to get one, why they didn't use the communal ones? The RAP team had also not pursued any questions about farming and fertilizer use. The discussions about how to identify interview questions highlighted the strength of group analysis and flexibility in the RAP process and the way it encouraged the team to thoroughly examine the local water situation.

The **visual displays** of what the RAP team learned helped keep everything that was observed, discussed, and presented in mind and helped the team analyze and triangulate findings. As the PCMI student remarked: *It was a really good way to go through everything and keep it all in front of us.* It also allowed the analysis to be interactive and fun; RAP team members took turns being the scribe which encouraged active participation by everyone in the assessment process.

The focus group allowed the RAP team to observe and gain insight about the dynamics of different generations in the community. For example, it was clear that offering an opinion that differed from one's elder or even engaging in the conversation was limited in this small focus group. The RAP team discussed making a recommendation to the COCODE that they conduct separate focus groups for both youth and elders to have a voice. The two would then merge in an effort for the elders to see the value in the youth's

ideas, thereby the COCODE leaders would listen instead of talk (which is the typical interaction for community meetings). A structured focus group gave the RAP team a chance to explore the water problem topic in a public way and to gain insight about their initial assumptions. It was a useful activity to practice being a team and to determine next steps in the RAP process.

The most notable observation of the use of the **household assessment method** was the enthusiasm of the youth involved and their contribution to the RAP process of getting to understand the community better. One woman commented that it was a "beautiful experience." Two expressed surprise at the range of answers they heard, particularly from those who reportedly drank from their *chorro* (water basins) or from the lagoon. The PCMI student reflected on this:

> *We found out different answers and interesting comments. Even from the participants. Because they didn't even know what people do so it was good for them to know what people from their community do.*

> *We found some interesting, some sort of attitudes from people, or at least I did find in the interviews kind of like it's the body language, not necessarily taken into consideration but you know how people reacted to some questions... So that was interesting, at least my part to see their language was part of their answer, essentially.*

4.2.2 RAP Application Strength 2

The RAP approach is a helpful way to investigate local environmental problems. Initially, the PCMI student expressed exasperation that the lagoon was clearly dirty but that in the time he had been there people either didn't seem to care, or if they said they cared, they didn't do anything about it. The PCMI student had not yet undertaken any participatory activities in the community to address the issue of the lagoon, aside from organizing one half day trash pickup campaign. The **iterative processing and team**

assessment of the RAP activities provided the PCMI student a way to critically and collaboratively understand the water situation in the community through a deepened understanding of insider's perceptions of the lagoon. The RAP team's assessment pieces included: a. daily summary and discussion of the activities conducted and information gathered and subsequent planning for the following day, b. summaries of interviews with the RAP team and visual display of the themes identified, c. note-taking and coding team member notebook, and d. analysis of RAP process as a RAP team. This structured approach allowed the PCMI student and his local counterparts to examine the community's water situation in a comprehensive and empirical way.

In Calderas, RAP investigation **built on exiting efforts** towards water resource management in the community. The RAP team inventoried what activities were already being carried out in the community related to water conservation, education, and other initiatives. There had been several attempts by outside groups to engage the community on education and awareness of the lagoon's contamination. There seemed to be a pattern of educational seminars and one-day clean-up campaigns attended by the same community members. When asked about them, there was little reflection about anything in particular learned; several respondents said that they were interesting. These conversations with community members and research into what had already been done helped the RAP team to consider how any future efforts should be implemented in relation to what had already been done, either successfully or unsuccessfully.

The focus group helped the RAP team gain basic information about the water situation which guided the design of the household assessment and formulation of interview questions. During the focus group there was agreement from the participants that the lagoon was dirty. But what was striking in comparison to the RAP team's direct observations about the lagoon being dirty because of the soap, trash, plastic, and animal feces were the participants' assessment of dirty only referencing the amount of algae.

Household assessments were also deemed a viable method for gaining baseline information on an environmental issue. This method was a great exercise for the local RAP team members to engage and train other members of the community.

RAP, because of its **core triangulating methods** which look at a problem from different angles, is ideal for complex environmental problem solving. A RAP team finds out a range of information from a range of sources and often that information leads to more questions which the team, or a PCMI student and his counterpart, can then investigate further. The PCMI student reported that he appreciated the RAP investigation and that it gave him new insights into understanding the community's relationship with its water resources before implementing more environmental education activities. He also expressed that he enjoyed the different methods that were part of the RAP. He commented many times about how much had been accomplished in such a short time. The PCMI student was exposed to the rigor that is required of a sound application of a RAP methodology.

The **identification of a RAP question** provides a useful way for a PCMI student to approach a community problem. It requires the declaration of a problem to be informed by a team and requires that the team identify what has already happened in relation to solving the problem. A PCMI student may have an idea of the problem, but it requires further support by ground-truthing collaboratively with locals.

4.2.3 RAP Application Strength 3

An identified strength of the RAP teams' interview strategy was that it gave a voice to members of the community who usually feel disadvantaged or left out of discussions about community issues. **Engaging marginalized community members** was an explicit goal of the RAP design and the team succeeded in following through with this. One of the poorest residents of Calderas was included in the interviews; he expressed his gratitude for being included, as he said his opinion is usually discounted or not sought. The RAP team also gained valuable insight from the "troublemaker" in the community-

someone who was disregarded by others and whom the PCMI student had been warned about. The youth who assisted with the household assessments and attended the focus group also gained a voice in investigating and discussing the environmental issues of the community.

4.2.4 RAP Application Strength 4

The RAP allows for social science methods to be used effectively even without extensive training. Comprehensive training in ethnographic methods cannot be covered in several days of RAP training, but basic techniques and important points about integrity and effectiveness were introduced to the RAP team. The case study showed that an initial training that adheres to best practices (i.e. published ethnographic texts and references like the WHO manual and the Beebe text) accompanied by constant team analysis helps the team to use these methods effectively despite the lack of formal extensive training. The local RAP team members had never been introduced to concepts like focus groups, semi-structured interviews, household assessments, or community mapping but they implemented these methods with integrity, despite only a few days training. A RAP approach includes guidance to help the user process the social data they are gathering, interview, and collect social data as a team with an insider, and use the variety of methods together. While discussing the methods used during the RAP for note-taking and coding the PCMI student commented:

> *I still need to practice more of that. I think it's an interesting way of taking notes. It just takes time to develop and everybody is different. I've always been, I'm not a notebook guy so…but it's a pretty cool way of taking notes, I acknowledge that.*

4.2.5 RAP Application Strength 5

The RAP approach promotes and elevates the importance of team-based work and participation. The local RAP team members participated in almost every step of the design and implementation of the RAP. They developed questions, and contributed to the flow of the interview process by encouraging respondents to elaborate or clarify

statements. They also trained and managed the youth in the household assessment activity. The strength of the locals leading the discussion cannot be overlooked as an advantage to this type of engagement with the community, which is required in a RAP.

The RAP team also found that incorporating a water testing method and photography assignment bolstered the objective of achieving meaningful participation. The water testing component was an effective method used not only to conduct simple analyses of household water quality but to engage participants as interactive members of the data collection. Having respondents inoculate and incubate water tests of their household water source, gave them a hands-on experience, a chance to do some citizen science, and served as a starting point of further conversations about community water resources.

4.3 Beneficial Elements of the RAP for PCMI Students

PCMI students and members of the returned PCV community at Michigan Tech told many stories about challenges they faced during their PC service. A great deal was learned from the interviews, informal conversations, and presentations about how a structured approach to using social science tools, like the RAP, might address existing gaps and what barriers might block its utility. Based on the lessons learned from interactions with the Michigan Tech PC community about their experiences with community development and seeing how the RAP was implemented in the case study community, this section highlights the parts of the RAP identified as being of most utility to PCMI students.

4.3.1 Benefit of the RAP 1

Comprehensively identifying and understanding community needs can be difficult. A RAP gives a team the structure and tools to investigate a community problem systematically. There were responses and attitudes from PC community members that revealed incomplete, limited and superficial consideration of cultural and social realities. There were many comments highlighting preconceived cultural notions that lacked context and deeper understanding. “People know it’s a problem, but they don’t do

anything about it." This idea was shared by every respondent in the semi-structured interviews, often times verbatim of their peers' sentiments.

When PCMI students make comments like "things just happen" it shows that there are assumptions and aspects of the complex society that they live in that they don't pursue beyond simple attempts to understand. "It's just the way things are." However, the "way things are" is likely a result of a complex interplay of dynamic features of history, socioeconomic conditions, social structures, environmental factors, and so many other moving parts. That is one way to assess observations and circumstances, but there is likely a contextual reason and an understandable cause and effect relationship.

Several of the PCMI students interviewed shared stories about how pertinent information was gathered at the end of their service or there was information that they admitted they would never be able to understand completely. Some students discussed pieces of community understanding that they acquired before even arriving to their PC assignment. Two mentions that stood out were the establishment of low expectations for the work they would accomplish-what was possible and not possible-and the idea that there would inevitably be people they wouldn't be able to work with.

> *There's always the village asshole. So you have to identify that guy. And, and not waste your time with certain people. I think it helped me identify who my allies were and who were gonna create problems for me* (Respondent 9).

The intention of the RAP is to give structure to uncovering knowledge, in hopes of minimizing these occurrences of inadequate or incomplete or misinformed understanding. One benefit of implementing a RAP would be to help PCMI students with the challenges of understanding their host communities.

4.3.2 Benefit of the RAP 2

Community project design, especially in the international development sector, often reflects a top-down approach. RPCVs reported that sometimes the goals of their PC sector assignment did not always match the reality of the goals and needs of the community. If a PCMI student has to compare the goals of the PC program to the goals of community members, a tool like the RAP could provide them with evidence based understanding to help them collaboratively identify the community's needs and design a solution alongside the locals.

When asked how community needs were identified, or how project ideas were developed, PCMI students commonly recalled their efforts from an individually driven perspective. Phrases like these came from almost every RPCV interviewed: "I planted the idea" (Respondent 2), "it took some subtle convincing over time" (Respondent 2), "getting them on board with what I was planning on doing" (Respondent 4), "this was something I immediately pitched thinking it was a great idea" (Respondent 4), "I tried to get people involved in that" (Respondent 2), "getting them on board with what I was planning on doing." (Respondent 4), "with some arm twisting I finally talked them in to doing" (Respondent 2).

PCVs often resort to top-down approaches for their community development projects when the pressures of their original PC assignment descriptions and technology training, along with time constraints for completing a successful project, bear down on them. They suggest and implement what they know, especially when frustration sets in.

4.3.3 Benefit of the RAP 3

There is a general willingness among the PCMI community at Michigan Tech to use social science methods. All of the PCMI students interviewed tried to use social data gathering tools and PC community integration activities to some extent, with mixed opinions on their usefulness. Some PCVs actively used these tools without extensive training-e.g. did their own interviews, surveys, community mapping, or participant

observation. Some used the tools that PC gave them as one-time simple assessments. Other RPCVs described how social data gathering tools like community mapping, seasonal calendars and observation were introduced but not with any useful context. Yet another recalled thinking, "why do I need these, these are stupid" (Respondent 3). During conversations, several PCMI students pointed out that training and support for using social science methods was lacking. On the other hand, one PCMI student explained that it is easy to get overwhelmed with the "social science stuff" (Respondent 1).

The experiences using of social science methods varied within the PC community; however there was overwhelming acknowledgement to their existence and most were willing and eager to use them more, if there were context and if they were sure using them would help them. What the contextual research also revealed is the beneficial exposure and preparation PCMI students at Michigan Tech get before they go into the PC. The RAP could be seen as an extension of the training and encouragement to conduct responsible community development work.

4.4 Challenges to implementing and benefiting from the RAP

Overall the RAP proved successful to adapt and implement in the context of the case study. And there are identifiable gaps in the way PCMI students approach their community development projects that might be addressed by a RAP approach. Despite these positive assessments of the RAP utility for PCMI students, several challenges to its acceptability and applicability were identified.

4.4.1 Challenge to the RAP 1

The RAP is not a one-off catch-all method and may not be effective at changing a PCMI student's attitude, understanding, or approach to their community development projects. RAPs traditionally lead to immediate responsive actions to address a problem or give direction towards new or expanded research. In this case study, the RAP members were challenged with following through with the team's

recommendations and time constraints. If a PCMI student has a different project or job priority, or the local RAP members have jobs to return to, or if any other unforeseen circumstances disrupt the PCMI student's service, following up on the RAP may be difficult. However, an advantage to the PCMI student is that their extended time in the community allows them to return to the RAP at another time and to continue to expand on it. The analysis also highlighted that twelve days of using social science methods is not necessarily going to remove a PCMI student's biases or assumptions about the community or problem.

4.4.2 Challenge to the RAP 2

Peace Corps Volunteers often report on the difficulties of finding committed and consistent community members to work with on their community development projects. **Identifying "counterparts" to work with is a potential barrier**; this already being a significant challenge to PCVs' community development work. The RAP team overcame the potential challenge of finding committed team members by selecting individuals who already had an established relationship with the PCMI student. The case study showed that there may be a need for resources to enlist the assistance of local RAP team members to relieve them of their regular duties during a RAP investigation. With a limited stipend, a PCMI student might need to get creative with how they create the conditions to allow community members to be fully participatory team members.

4.4.3 Challenge to the RAP 3

It will not always be feasible to conduct RAP in its traditional form; therefore it must be modified for a PC setting. In the rural community setting where the case study took place it was not possible to identify a host country national expert with a background in social science data gathering methods to be a part of the RAP team, as is considered best practice by Beebe (2001). So the objective of this particular RAP had to lean more on creating iterative analysis and action as the methods were being used.

The household assessment design and analysis that was part of the case study were not very rigorous by established social sciences standards; nonetheless they added value to the overall assessment. While most rapid assessments avoid quantitative methods like surveys, there was valuable insight gained from these assessments about the perceptions of water use in the community, not only from the household respondents but also from the local surveyors. If used as such, the household assessments could be used as a procedure to establish RAP questions or to inform other methods.

The RAP team was not able to analyze the data collected as rigorously as the established RAP entails. This was the greatest adaptation of the RAP for the PCMI context. In reality it is unlikely that a RAP team is able to do the following: a. the RAP team members can spare as much time daily as a RAP requires, b. the PCMI student will have the motivation and energy to dedicate to the daily analysis, and c. the limitations of electricity and food preparation and other environmental factors will permit intensive daily assessment.

4.4.4 Challenge to the RAP 4

Peace Corps life and normal daily obstacles make the adoption of a structured activity challenging for a Volunteer. The **utility of using a RAP will be challenged by a range of factors facing PCMI students**, just as using the tools already available to them is often challenging because of factors like timing, language, political will, being an outsider, power, involvement of counterparts, health, and personal motivation.

A number of comments from RPCV respondents indicated that there are barriers to using social information collection tools during Peace Corps service. Types of barriers include not having power or credibility, communities being closed to outsiders, having limited language skills, not having anyone to go with them, the timing of when they are used, adjusting to a new place and PC life and not yet feeling comfortable in their communities, and skepticism that the information was not sufficient or valid. To be useful, a RAP would have to be made easily accessible and adapted to a PCMI student, as was done in the case study, to overcome these challenges.

4.4.5 Challenge to the RAP 5

Despite training and introduction to a wide range of strategies and methods for community investigation and project design, **existing resources are not fully utilized by PCVs**. Many PCMI students feel they have what they need to operate in their communities without using the resources available to them already. Peace Corps provides a wealth of resources a PCV can use while in service. And while several respondents recalled their exposure to some of these resources, for the most part they were not really used and not thought of as very helpful. The Participatory Analysis for Community Action (PACA) Training Manual is one such example. This resource for doing participatory community development is 254 pages. There is also a Project, Design and Management (PDM) training for PCVs and their counterparts. It would seem like these materials would be useful to PCVs because they were developed with the PCV and their working challenges in mind; and yet they are not always embraced.

Many respondents brought up the idea that they learned about the community "by just being there." One PCMI student remarked:

> *To be honest, because, I think that I learned as much from just sitting around observing and like listening, as I did from doing those activities* (Respondent 1).

This was a refutation to the need or benefit of using social science methods; the idea that you don't need specific tools to gain community understanding, you learn it with time through conversation and observation. To overcome this challenge, a RAP would have to be presented in a different way to a PCMI student to be seen as credible and worthwhile; and it would have to be readily accessible to a PCV in the field.

4.4 Conclusions

The RAP is a straightforward and structured way to implement a social science research approach. It offers myriad opportunities, particularly when working on environmental

problem solving, to allow PCMI students to engage with the community and learn systematically from the perspective of locals.

The evaluation of the RAP case study suggests that follow-through with other research or projects to address the needs identified is paramount. The PCMI student asked the local team members follow up questions of which the responses revealed that without any leadership their suggestions of the RAP evaluation were never acted upon. Thus, the evaluation and possible outcomes remained the same. This reinforces the idea that the RAP is to be used as an initial activity and not a standalone methodology. The local RAP members, while commenting positively on the process and their enhanced understanding of the community's environmental problems, acknowledged that the situation was difficult to change, and that they lacked time, resources, and power to carry out further activities. A PCMI student who had remained in that community could have helped the local RAP team members organize a meeting with the COCODE, hold another dual multi-generational focus group, and implement further educational activities.

The case study illustrates that a PCMI student and their local RAP team member counterparts were able to carry out a RAP with its core features intact. It was successfully adapted to the local setting in Calderas and implemented based on what the RAP team designed for the investigation of the environmental problem. There were no significant barriers to any of the methods chosen, the timeframe, access to community participants, no significant resources needed, and the ability of the RAP team to analyze what they were learning and create preliminary plans for next steps were all evidence that a RAP is a feasible approach for a PCMI student who is interested in using it. The contextual information gained from the PC community shows challenges and gaps that the adoption of a RAP could address, therefore adding to its potential utility.

5. Discussion and Recommendations

The RAP case study and supporting research for this thesis was inspired by an interest in finding out if using social science methods in a systematic way could help PCMI students with environmental problem solving during their Peace Corps service. Specifically, could the RAP methodology be adapted and implemented in a PC setting? And could it provide a useful way for PCMI students to work collaboratively with locals to better understand environmental problems in their community in order to make their development projects as effective as possible? The hope is that environmental problem solving approaches will be designed with deep understanding of the community context, thus improving the overall impact of the PCMI students' community development work. There were a variety of lessons learned through the case study and accompanying qualitative data gathering within the Michigan Tech Peace Corps community about how the RAP might be designed and used for environmental problem solving work. The findings show that the RAP methodology is viable for use by an international development practitioner, like a PCMI student. The findings also showed that there is potential utility for a PCMI student to use systematic social science methods in their environmental problem solving approach. But, it was also identified that the RAP approach is susceptible to the common challenges of PC work. Using a RAP will not address all of the problems of creating more sustainable environmental development projects. And ultimately, the RAP examined here was part of a case study, so the conclusions about its broader utility are limited in scope.

This chapter summarizes the major conclusions about the strengths and weaknesses of the RAP for a PCMI context. This chapter also offers recommendations for how the RAP can be incorporated into a PCMI student's training and service. Some limitations of the research are identified. An outline draft for a RAP "Field Guide," which highlights key points of the RAP for a PCMI setting, is included as an Appendix (Appendix 10). This was identified by several faculty members as being something that would be particularly useful for adoption of the RAP approach by future students. Ideally it would be

completed as a resource for PCMI students at Michigan Tech to use during their PC service or for use by other students engaging in international development projects.

5.1 Strengths of the RAP Approach

The RAP case study pointed to several ways adopting a systematic and deliberate approach to community understanding could help a PCMI student address environmental problems. There are identifiable strengths of the RAP for addressing some of the challenges that PCMI students face in their communities. The RAP case study, in its design and expectations, addressed some of the pitfalls of unsustainable environmental development work. This section summarizes what were identified as the major points of utility of the RAP for a PCMI setting related to the following: a. environmental problem solving, b. enhanced community understanding, c. supporting PC assignment challenges, d. giving structure to using social science tools, and e. building on existing training.

5.1.1 Environmental Problem Solving

The RAP's **focus on core techniques makes it particularly well suited to environmental problem solving which many PCMI students encounter.** The RAP, as experienced in the case study in Calderas, allowed for a sound process of collaboration and decision making while examining the problem of water contamination and water use. Agrawal and Gibson (1999) conclude in their assessment of necessary components for natural resource management projects that having implemented an element of inclusionary analysis of problems and decisions must be a process that considers and includes marginalized groups, ensures the information contributes to future decision making, and includes the beneficiaries in evaluating the work. The RAP lends itself to this comprehensive process, because it prioritizes the role of collaboration and thorough data gathering, which inform actionable next steps based on local knowledge. This is also a major element in PC's Goal One of training and building the capacity of local counterparts.

The RAP team created opportunities for local community members to be an integral part of the investigation and assessment of the problem of water resources. Involving those young adults in the household assessments and conducting interviews that included those whose opinions usually are not sought allowed the PCMI student to engage marginalized members of the community.

Another benefit of the RAP, beyond its data-collection utility, is **help with PCMI student community engagement**. The level of participation required for a RAP offers an interesting way for a PCMI student to achieve participatory goals. The PC program emphasizes collaboration with local counterparts in order to improve the capacity of locals' technical and problem solving skills (Peace Corps 2014). This ensures that once a PCV leaves, projects can be maintained and new ones created because those local skills and capacities endure. Achieving participation is often seen as difficult by external counterparts, like PCVs, who are trying to implement development projects. But participation that is effective and transformative must go beyond jargon and beyond simply getting community feedback or engaging locals for labor (Cornwall 2008). Advanced community engagement and participation should increase the likelihood of community acceptance of problem solving strategies. This type of community involvement comes from a deeper understanding of the local culture and context in which PCVs are living and working. And this deeper understanding of the community is something that has to be actively sought. The Peace Corps believes its PCVs will "partner with local communities to address their development challenges," "work collaboratively together to strengthen local capacity," and "meet their community needs" (Peace Corps 2014). The RAP is a tool that could help a PCMI student become a true partner in development.

5.1.2 Enhancing Community Understanding

The ultimate success of a PCMI project is derived from an understanding and adaptation to a culture and situation a student is not fully aware of until they arrive at their site, despite all efforts at training and preparation. Common negative responses to

international immersion range from incredulity at certain local practices that seem "backward," frustration for the perceived lack of interest in engagement and problem solving, to resignation that efforts for change will be futile. It can be challenging to understand how locals "transform their practices in the face of modernity's contradictions" (Escobar 1995, pg. 221); why for example, every house in a village has a television, but why there is only a fraction of homes with toilets. PCMI students need to be equipped to look critically at these realities they encounter. RAP methods could provide some insight into these situations where it is tempting to assume that some things cannot be understood or controlled for.

The results of this study show that every PCMI student interviewed and most RPCVs acknowledged some level of **lack of understanding or gap in knowledge about the community dynamics or a local environmental issue that they encountered.** Based on this common experience, this research argues that any additional strategy to address the observed gaps in understanding is beneficial. The RAP is a tool to more deeply understand a problem from the perspective of the local community, with the help of local team members. A RAP may not reveal every detail, and assuredly there will always be aspects and concepts and behaviors that are not understood by the PCMI student, but the goal should be to apply a method that might improve the approaches already being used.

James Peacock, in the *The Anthropological Lens* (1986), highlights another problem with cross-cultural engagement that PCMI students often face-that of examining a problem too narrowly based on personal bias and assumptions. This concept of **being hindered by one's perceptions is exactly the kind of challenge that PCMI students often face.** They perceive a problem through their understanding-"they do this because they are poor" or "they don't care about conservation because they are too busy living day to day." Even after living in a community for two years, a PCV may still operate with these assumptions. This superficial understanding creates barriers to effectively addressing environmental problems. It is the kind of situation which could be improved upon by

using a RAP investigation to understand the context of the problem more deeply and holistically.

PCMI students should be reminded of the need to reflect on one's assumptions and biases and to approach their community development in an open-minded and locally informed manner. In a RAP there is encouragement to seek out the troublemakers to balance the gathering of diverse community perceptions. The lesson that there is a village "jerk" that one can discount and avoid may be a good source of reinforcement for the PCMI student's personal sanity. But is there value and benefit to attempt to understand why he responds to his situation the way he does? What is his position in his community and where did it come from? Ultimately, the work of the PCMI student may still have to involve and incorporate the village "jerk," so understanding that person may indeed be worth some time and effort. Ideally a RAP approach would help a PCMI student to discover the community in an informed and intelligent way. A RAP could be helpful in developing a deeper understanding of the community context in which they have to live and work, to find out more empirically what is and is not possible.

Another positive element of the RAP approach is that it **reinforces systematic triangulation and evaluation of information being gathered**. An assumption when approaching participatory community development is that the people living in the environment are the best sources of knowledge about their circumstances, behaviors, and cause and effect mechanisms (Rist 2009). The youth that carried out the household assessments in the case study were surprised to find out about how other members of their community procured water, how they washed their clothing, and what kind of latrines they used. Assumptions that community members know generalities about how things are done misses the nuances of variable types and sizes of communities, variable demographics and physical boundaries within the community, and even the variable power and knowledge distribution members of the community have. This lesson reinforces the need to continually ask questions, of different people, and to evaluate and reflect on the explanations for why things are reported to be the way they are. Several

PCMI students shared experiences about how something they learned from one preliminary assessment tool or from their interaction with their main counterpart was challenged or proved to be insufficient to understanding the bigger picture. This shows the opportunity to reinforce the idea and value of triangulation.

Critics of the Peace Corps, like former PCV and PC recruiter and director Robert L. Strauss, have argued that the Peace Corps has never decided whether or not it is a development agency and thus has failed to be ultimately successful in its development approach or to be taken seriously or used as a model for development practices despite its 50 years of overseas engagement in development activities (Strauss (b) 2008). **One solution to this critique is to encourage PCMI student community project work to go beyond using the "appropriate terms" (Doolittle 2006, p. 53) in development discourse.** They should strive to be genuinely more collaborative in nature, not just participatory, from the analysis of the problems, to the identification of strategies, to the design of interventions, to the assessment and ultimate evaluation of how well the needs of the community were met.

5.1.3 Addressing PC Assignment Challenges

Volunteer assignments are created by Peace Corps and host country stakeholders. A **PCV has to adapt their efforts** to a project that may not address the sector to which they have been assigned and often times the specific site location and job assignment are not revealed to the PCMI until their training phase is concluded. PCMI students experience incredible variability in their assignments, sometimes along with frustrations of site placement, work assignment, counterpart relationships, and personal motivation. All of these factors present potential hurdles for Volunteers during their two year service (Silliman et al. 2010). The RAP case study highlighted the importance of defining the community problem as a team and using the RAP as a stepping stone activity to other investigation and projects. A PCMI student could consider the RAP as a tool to be conveniently used when they need it.

The **RAP approach to early community engagement also provides specific benefits to the PCMI student in the field**. It provides a tool for organizing a student's thinking; giving them a framework for understanding a community and its environmental challenges. A RAP requires planning, organization, teamwork, documentation, and accountability. It provides a PCMI student who is feeling lost, bored, or frustrated some structure and support. It has potential to keep a PCMI student "on track." Preliminary reports or action plans from a RAP would make interesting deliverables to academic advisors and Peace Corps directors to show their progress. These reports might even provide an opportunity for the advisor to help or direct the PCMI student in a productive way. A RAP application might prove especially helpful if a PCMI decides to pursue a Small Project Assistance (SPA) Program project. It could provide the rationale and context for the grant application. If a PCMI has done preliminary work to understand an issue, with the engagement of local counterparts, the merit of the work being proposed might be more convincing.

A newly arrived PCV is inundated with culture shock, constant stimuli, interactions with locals, a language barrier, and constant questions and answers about how to navigate the surroundings and do the work-both the PC assignment and the master's research. **Creating a systematic accounting of a PCMI student's social interactions and observations** will surely add value to their PC service. Thinking about things critically and objectively and purposefully, and having notes to refer back to later that day or 80 days later to analyze systematically, could provide a richer context for community understanding.

5.1.4 Providing Structure to Social Science Methods

The RAP case study showed the utility of having a strategy to use social data gathering methods in a structured way. What many PCMI student respondents referred to as "just sitting around and listening"-what they acknowledged as one of their best strategies for approaching community understanding-is the important social science method of participant observation. But RAP asks the PCMI student to go beyond simple passive

observation and requires them to reflect on it and use it to ask more questions and think about their role in the dynamic as well. Another example of the structured use of social science methods was the interviews. The goal of conducting ethnographic interviews it not to learn interesting things; it is to search for information that reveals something about the way the community functions or how people behave. The interview component of the RAP encourages a PCMI student to talk to people in a purposeful way, encouraging respondents to tell their stories. The RAP gives structure to participant observation and other methods.

As many RPCVs pointed out, the **model of the PC approach allowed them to develop a better sense of their community over time**. The RAP builds on that PC advantage of being in the community for two year. As opposed to just walking around the community, figuring out what the community needs, a PCMI student could make those walks with different people and ask questions and make observations and reflect on those experiences together with a local counterpart. This affords the opportunity to understand and assess how the PCMI student's understanding of the needs coincides with what the needs are of different people in the community.

The case study findings illustrate that some form of systematic social science procedures, whether the RAP or otherwise, could be beneficial in the field. There is a growing emphasis that engineering programs, which are hoping to produce "globally competent engineers," (Downey et al., 2006) need to heed the lessons of social science curricula which is readily accessible at many learning institutions. Michigan Tech students who hope to become these internationally competitive engineers could benefit from applying social science methods in a community setting while in the Peace Corps.

5.1.5 Building on PC Preparation and Training

The RAP is a hands-on approach that reinforces concepts from training and preparation and encourages deeper understanding. PCMI students are exposed to many concepts and resources, but it's not hands-on training and it's not reinforced. And sometimes it sells

the PCMI student short of searching for deep understanding in their community. The RAP, with its straightforward and accessible methods, could serve as a tool for PCMI students to conscientiously put into practice some of the best practices introduced to them.

The Geology and Social Sciences departments were increasing their collaboration on integrating methodologies when this research began in 2010. To some of the PCMI geology students this meant the pursuit of social geology. Its promotion was a positive recruiting tool for grabbing the attention of prospective scientists who wanted to combine their interest in Peace Corps and community involvement with their natural science research goals. The Partnerships for International Research and Education (PIRE) grant was written with the goals of "building a new educational system of applied research and engineering" and encouraging "cross-disciplinary, creative and critical thinking in problem solving and foster the ability to deal with uncertainty in analyzing problems and designing solutions" (from *Remote Sensing for Hazard Mitigation and Resource Protection in Pacific Latin America*, NSF PIRE 0530109). Implementing a methodology like the RAP is a natural progression of the interest in applying interdisciplinary strategies for effective international problem solving.

The Peace Corps, from its beginning, intended its Volunteers to survey the community first to understand the complex factors at play before developing projects. University consultants were brought in in the 1960s to help develop the approach the PCVs would take in their communities. Latham (2000) describes that the expectation was that PCVs "after a few months of practice, were to marshal their social scientific training to develop a diagnostic view, an objective, comprehensive analysis of a community's subjects and social lives (p.127)." Peace Corps has always promoted the use of social science tools, with these earlier formal trainings and now with resources like PACA tools. The suggestion then of advocating for using a systematic approach, like the RAP, is in line with PC's policies and objectives.

5.1.6 Conclusion of Strengths

Overall using the RAP during the case study in Guatemala showed utility for students in a PCMI context. Since the RAP is intended to be a piece of a larger examination of a problem, there are limited data to support that the RAP "solved" any problems in Calderas or was effective in helping the PCMI student to completely understand his PC community and their water related problems. However, the identified strengths of the RAP process, based on this case study, are these: a. it was completed as planned showing its feasibility, b. it was received positively by the PCMI student, and c. it incurred no significant problems or setbacks. The RAP provided valuable structure for the PCMI student in this case study and it could do the same for another. It provides a systematic approach to the integration process in the community. It also enables PCMI students to learn local terms and frameworks and systematically observe the community they are working in.

5.2 Weaknesses of the RAP approach

There were no major complications or limitations that would suggest there is potential for negative impact from the use of the RAP. However, the case study showed that is has limitations to making a significant impact on addressing all of the challenges a PCMI student faces when solving local environmental problems. The limited nature of the case study could not offer a complete picture of its potential utility.

The case study suggests that **as a standalone activity, the RAP is not highly effective at facilitating change**. During this case study, the PCMI student was not able to follow through with the information from the RAP or continue to work with the local RAP team members. A PCMI student must be committed to using the RAP as part of a whole and following up on the action planning and reporting from the RAP. Information and insight gathered are not lost or insignificant, but without follow up or further implementation, the utility from using the tool, is diminished.

Implementing the RAP is intensive work. It requires planning and organization. It takes time and discipline. It challenges the PCV just like any other community activity that they try to implement would; they still have to find RAP team members, they will have a language barrier, and they will still be an outsider. A PCMI student has to be prepared to engage in deliberate advanced level thinking, planning, and problem solving to carry out this type of activity.

A barrier to incorporating the RAP is an existing **lack of credibility for using social science methods**. This can only be improved upon by students using these methods and reporting on the value of their use. If PCMI students don't use the other methods and approaches presented to them, why would they use the RAP? There is no utility for the RAP is it's never used. To overcome this, PCMI students need a practical reminder about the potential utility of social science methods and thinking in understanding the environmental problems and social dynamics in their communities. The lessons from preparatory classes at Michigan Tech which stuck with PCMI students the most were those about personal adaptation and self-preservation. During the interviews, there was little to no mention of lessons on best development practices or techniques; what was most memorable was the advice on how to persevere and overcome personal challenges to staying in the PC for two years. After all the training hours and resources spent emphasizing the usefulness of development theory and social understanding approaches, the expressed lack of interest, half-hearted attempts, and admission of completely forgetting that they existed is telling that the reinforcement of the ideas and accountability are necessary for their use.

Related to this, another barrier to the RAP could come from the **resistance of faculty to recognizing the utility of the RAP** as a worthwhile approach for environmental community work and research projects. There needs to be "buy-in" from the Michigan Tech community. Interviews suggest that the influence (or lack of involvement) of the faculty advisor has an impact in shaping the approaches and strategies of the PCMI student while they are in the field.

The RAP, being a member of the participatory action research family, prioritizes the role of collaboration with local community members. The Peace Corps host country national counterpart is a common denominator for all Peace Corps Volunteer experiences. **The RAP approach does not provide a sure solution to the challenge of finding a counterpart to work with**. What the RAP case study showed however, was that simply engaging several young adults who were motivated and curious gave the PCMI student an opportunity for meaningful participation with local counterparts. His official counterpart was never part of the RAP data collection process, but the PCMI student was getting out into the community and learning valuable lessons despite this. It would however be advantageous to identify and engage RAP team members that have a role to play in the intervention of the problem identified. While the collaborative objectives were met during the case study using the RAP, the fact that the local team members were not directly invested or tasked with addressing the problem of lagoon contamination, likely contributed to none of actionable items from the RAP being carried out. If the town's water manager, for example, had been a member of the RAP team, he might have taken more immediate and sustained action.

5.3 Research Limitations

Several limitations of this research exist for trying to determine the utility of the RAP for a PCMI setting. The scope of the case study is limited and the results cannot be validated without further application of the RAP in the PC setting. And now that the PCMI program has been retired (in 2016), for this research to be validated or continued, it would need to be applied more generally to university student international development contexts like Engineers Without Borders, and more research conducted on its utility and viability. Another limitation of the research, which is difficult to sort out from one case study, is how helpful the use of the RAP methodology is versus the helpfulness of having someone from the institution visit the PCMI student to help motivate and initiate a project focus. It is not clear what was shown-if the utility of the tool or the utility of having someone there to be accountable to and motivate, or a combination of the two was more

important. Finally, the RAP does not have much history of use or credibility for many environmental contexts or for use in the Peace Corps. The RAP has mainly been applied in health crisis situations. While the RAP did show utility in this case study, more research needs to be done to validate its benefit in international environmental problem solving contexts.

5.4 Policy Implications

The findings of this research have several policy implications reaching into two different spheres. One sphere relates to the policies of the institutions that PCMI students are formally a part of, Peace Corps and Michigan Technological University. The other relates to the policies of international development and international, national, and local contexts related to the type of project PCMI students work on, and for the purpose of this research that is environmental and water resource development.

PCVs do not answer to many regulations or formal policies regarding their development work. Formal assessment of the effectiveness of PC development work is lacking. Despite decades of biennial Volunteer surveys, where PCVs self-report project effectiveness, number of people served, and cultural sensitivity measures, there is limited quantitative and qualitative data on the impact of PCV development projects. Only recently has the PC started to invest more resources into gathering independent information from host communities and PC country offices and staff (Kerley and Jenkins 2010). Michigan Tech has no particular policy for the PCMI program with regards to their PC community assignments. They are held accountable in terms of completing their master's research. During Peace Corps, PCMI students receive training, report to their APCD and submit quarterly reports. But there is little monitoring and evaluation for the quality of their community development projects. One could suggest that the RAP be recommended by Michigan Tech to promote using best practices where gaps in policies and regulations fall short of overcoming some of the common pitfalls of international development work.

The Peace Corps' core mission as a way to create peace and friendship with developing nations remains the same as when it was established in 1961. But PCVs are undoubtedly development practitioners as they engage in "activities designed to build capacity at the grassroots level so that communities are empowered to solve their development challenges" (Peace Corps 2015). The rhetoric of the PC mission and training emphasizes many of the key tenants of contemporary development theory and practice, such as successful projects, community participation, sustainability, capacity building, and appropriate technology implementation. Many of these are core components of the RAP approach so it seems a good match for the PC to promote this comprehensive community understanding strategy. Gaps in the PC approach to international development and policies mean there is room for improved understanding to better inform future policy for its environmental sector work and best practices training for Volunteers.

The value of this study of the RAP for the environmental policy field is that it highlighted an organized and systematic process for investigating and defining an environmental problem. Holistic understanding is the foundation of effective policy making; without understanding what the problem is, the policies created to address that problem won't work. International development literature shows that "the problem" is often defined by someone from the outside. Failures and inadequacies of policy and practice have led international development through decades of shifting paradigms. The contemporary development models and critiques stress the importance of participation and collaboration. Keck (1995), Lance and McKenna (1975), Lassiter (2005), and White (1996) (among many others) all identify that failed projects and solely technical solutions share a common gap in meaningful participation. Lewis et al. (2003) argue that community understanding is essential to development. Perhaps more research that distinguishes the effective use of RAP and other methods which advance the prominence of the social understanding of a problem from an insider's perspective will shift future models of development even further. The new development model will push a new paradigm that not only promotes collaborative policies and approaches but mandates their use and accountability.

Studies of rapid assessment approaches come mainly out of the health field. This research adds to the literature on rapid assessments because of its more longitudinal implementation and because of its application in an environmental problem solving context.

5.5 Recommendations

One of the main objectives of this research project was to determine if it was appropriate to suggest rapid assessment as a methodology to help PCMI students who will be working to solve environmental problems in their PC communities. This section presents seven recommendations based on the analysis of the strengths and weaknesses of the RAP approach and shared experiences of the Peace Corps community.

5.5.1 Recommendation 1

A strategy worth exploring is to **promote the use of the RAP approach to PCMI students while they are at Michigan Tech**, either as a supplementary training or seminar or as part of a PC preparatory class. A majority of the PCMI interviewees found ethnographic techniques-particularly surveys and interviews-helpful but their limited knowledge and training suggests that their usefulness was not as impactful during their PC service as it could have been.

5.5.2 Recommendation 2

A strong recommendation for the relevance and applicability of the RAP for PCMI students is to strive to **make learning social science methods as hands-on as possible**. Creating a hands-on practicum module could provide more tangible context for theory and introduction to social science methods. This would require a considerable time investment and might take away from the objectives of already established courses. So consideration of the best way to implement a hands-on training would have to be discussed. The practical application of a RAP methodology investigation in the local

community would complement the theoretical lessons and experiential stories which are present in the classrooms and give students first-hand experience implementing a RAP.

5.5.3 Recommendation 3

Providing PCMI students with an abbreviated, **user-friendly RAP field guide**, which can be taken with them to the field, would be beneficial. This adapted version of James Beebe's *Rapid Assessment Process: An Introduction*, written in a simple and creative way directed at PCMI students, could prove a practical reminder and a guide for incorporating a RAP into their activities. An unfinished draft outline of this RAP Field Guide for PCMI Students can be found in Appendix 10. It was not completed for this thesis because it is outside the original scope of the research, but it was identified as the kind of resource that could be developed for PCMI students and their faculty advisors, to make the RAP more accessible.

5.5.4 Recommendation 4

It is important to encourage, if a RAP approach is taught, that no matter what setting or problem or context the RAP may be applied to, **the critical components of the RAP design must remain intact**. A responsible application of this social science methodology is essential. RAP allows practitioners to create their own "toolbox" for their assessment. But, that toolbox must be filled-as much as possible-with tools based on the core principles of RAP. Foremost, it must be collaborative and prioritize the insider's perspective; every activity and assessment must be done by the PCMI student together with at least one other person. It must involve iterative analysis by the RAP team. It must use multiple methods for triangulation. It should be clearly communicated to the community what the objective is and avoid creating heightened expectations.

5.5.5 Recommendation 5

The **role of the advisor** should be considered more pivotal in the PC community work of their PCMI students. PCMI advisors must also be advocates for and promote the importance of pursuing deeper cultural understanding in order to assess and solve

environmental problems. This means they have to believe that social science methods add value to their PCMI student's education, experience, and impact as a PCV. More collaboration across departments and more transparency about the challenges and experiences of their students could promote this understanding. One idea is to create a seminar for faculty advisors on the integration of social science methods in the work of their PCMI students. It would also be beneficial to PCMI students to have more engagement with their PCMI advisors while they are serving in the Peace Corps.

5.5.6 Recommendation 6

Michigan Tech's PCMI program could set the expectation the all PCMI students incorporate systematic social data collection into their approach to environmental problem solving in their assigned communities as part of their master's degree requirement. There could be a requirement that all PCMIs students attempt to use rapid assessment techniques within their first three to six months at site and submit a report to their advisor, or as part of their first quarterly PC report. If an expectation for use is set, there must also be a mechanism for accountability.

PCMIs students from Michigan Tech should be prepared to work smarter than their generalist PCV peers to become effective development practitioners and create sustainable environmental solutions. And while this "extra" assignment or expectation to use a RAP might be seen as difficult-given their heavy course load prior to Peace Corps, the master's research they have to carry out, and the challenges and demands of adjusting to their PC lifestyle-it should serve the opposite purpose, to make their life and work easier. Conducting a structured investigation of environmental issues alongside a local should enable them to generate understanding and problem solving ideas that might avoid future frustrations or barriers. While some PCMI students might object to this perceived extra workload and expectation, an argument has to be made, that the program they are in requires quality, high level work from its students, not only in their discipline but as community development workers.

The RAP required discipline, motivation, organization, and attention to the integrity of qualitative data gathering. In short, it wasn't carried out lightly or haphazardly. The benefits from this investment of time and energy are difficult to quantify and measure, but there seems to be little to non-existent harm that can come from informed and improved understanding of a community. This is even more beneficial when it is done in a systematic and reflective way and done as a team, which prioritizes the perspective of the insider. This research argues that PCMI students are graduate students and therefore can be expected to introduce structure and critical thinking and face an advanced level of accountability. This also gives them the opportunity to be "role models" for their PCV peers.

Students should be encouraged to acknowledge the necessity of developing a deeper understanding of the community for themselves**.** This encouragement must be consistent and structured in some way. At present students are given introductory exposure to qualitative data gathering approaches with reference to "if you choose to incorporate these techniques." Separating the discussion in this way seems to lead most PCMI students to the conclusion that qualitative approaches are optional, when they should be considered indispensable.

5.5.7 Recommendation 7

Part of the accountability for PCMI students must involve **using social science methods responsibly**. The PCMI student should be mindful of any cultural implications of their use of social science methods. Note-taking, asking personal questions, drawing maps, taking photos-these could be potentially intrusive or offensive. So care needs to be taken to apply these methods thoughtfully and respectfully. And this is where the importance of using a team, with local community members is crucial. PCMI students need to be aware of the necessity of seeking IRB approval if they discover the RAP techniques are useful not only for their community project work but would be useful to include in their master's research project.

5.5.8 Conclusions

Yach (1992) points out that in international development, particularly related to water, it is more important than ever to establish a local understanding of the problem. It is not possible to teach an individual PCMI student about the exact cultural context they will find themselves in, or what the environmental challenges will be, or how exactly they can carry out a project with success in their host community. What can be reinforced are tools and techniques they can use for understanding the issues and local cultural landscape for themselves. PCMI students can be introduced to potentially effective tools (and reminded of them) in a manner that explains the rationale for their use and provides guidance about how to use them properly. PCMIs students might get general training on environmental issues, developing country dynamics and challenges, training on national norms and behaviors through PC when they arrive, but none of these can be applied without deeper contextual understanding of the local realities.

The RAP provided structure for the PCMI student in Guatemala during this case study and it could do the same for another PCMI student, if they chose to use it (or were expected to). It would be an active and purposeful approach to their three month integration process. It would allow them to learn local terms and frameworks and systematically observe the community. The RAP approach would also be useful for PCMI students in their first three to six months of service when they are integrating into their new communities. If they move sites or are re-assigned to a different country during their two years' service, the RAP would be helpful to navigate some of the new community dynamics in a shorter timeframe.

The case study and contextual research at Michigan Tech reiterated the complexity of the experience of the PCV. Being an effective development worker, implementing sustainable environmental projects is just one objective of PCMI students. The RAP is a tool that could enhance the approach that PCMI students take to collaboratively learning about and working with their community to address environmental problems.

6. Conclusion

Engaging in international environmental development efforts as a physical science or engineering graduate student from the United States is a complicated endeavor. As an American citizen who has been raised in a particular cultural context, with varied experiences and influences and motivations and skills, it is undeniably a substantial challenge to journey to a foreign country to help work on solving an environmental problem in a completely different setting and context. Amidst the reality of managing personal liabilities and cultural integration, this graduate student is probably also aware of the recognized obstacles and criticisms and triumphs of the scores of their peers who have done what they are setting out to do. A graduate student who leaves the U.S. to apply their skills and enthusiasm to global environmental problem solving cannot exist in a bubble where they regard what they are attempting to do as entirely new or that it will not be scrutinized for its approach and effectiveness. The age of globalization and interconnectedness, fast information, multidisciplinary sharing, and public scrutiny make any effort at global engagement subject to the lens of multiple microscopes and swift feedback. Development intervention approaches to environmental problems, which discount the value of social science integration, are out of date. Emphasis on technical interventions must be met with complementary emphasis on understanding what people value, how they behave, who holds the power, and what social, cultural, and historic factors influence the situation being assessed.

The aim of this research is to contribute to the increasing body of knowledge, assessment, and evaluation of the PCMI program at Michigan Tech while also providing insight and support to PCMI students engaged in environmental community development work requiring pragmatic solutions and local responses. This case study offers valuable suggestions for how PCMI students can effectively use social science methods to enhance their community projects and their impacts on their host community and local counterparts.

Stories from PCMI students and their advisors highlighted a problem-that of a pattern of experiences that revealed a lack of success and frustration in implementing environmental projects and research while serving in the Peace Corps. The RAP case study showed its usefulness to address some of the challenges shared by members of the Michigan Tech PC community. Alone, a RAP cannot be expected to lead to grand long-lasting changes; however its utility is primarily as a process for PCMI student engagement, information collection, and prioritization of actions and not about changes itself. It is just another possible pathway to implement change. And policy that governs international development, like the work of PCVs, cannot be established or strengthened without strategies to better define community problems and create the conditions for improved community understanding.

This research focused on the environmental work of the PCMI program at Michigan Tech but the benefits of incorporating the RAP can be extended to the broader Michigan Tech community. There are many student groups engaged in international development focused on issues of environment and natural resources. These students' work could also benefit from the incorporation of a more systematic approach to collaborative community understanding. Engineer's Without Borders, Pavlis Honors College Global Leadership and Peace Corps Prep Pathways Scholars, senior design projects, iDesign, other D80 Center programs, and Sustainable Futures Institute all have students engaging in international contexts to understand global problems and design solutions. The RAP approach could be promoted to these groups and offered as a useful tool for broader campus-wide adoption. An institution promoting the training and preparedness of professionally competitive and effective individuals in the global community after graduation should continue to investigate and promote practices and strategies that will continue to push the policy and practice of international development in the right direction. The RAP is one such approach and it was my honor to test it in this context.

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Appendix 1-Sample Inventory of Different Types of Rapid Assessment Procedures

Table A.1 List of Rapid Assessment Types and Approaches (not comprehensive and presented in alphabetical, not chronological order

Community Assessment Guide (2011)	Adapted by PC Guatemala for use in the Sustainable Community Tourism Program; uses PACA tools and interview techniques
PACA (Participatory Analysis for Community Action) (2005)	Developed by Peace Corps building on principles of PRA and RRA; additional elements of separating respondent groups and convening for analysis led by community
PRA (Participatory Rural Appraisal) (McNall and Foster-Fishman, 2007)	Evolved from RRA and is used in developing country contexts for natural resources management, agricultural, poverty, social, health and food security issues
RA (Rapid Assessment) (McNall and Foster-Fishman, 2007)	Combines practices of PAR (participatory action research) and ethnographic action research in a rapid, inexpensive, and pragmatic way; used for social and health issues
RAP (Rapid Assessment Process) (Beebe, 2004)	Comparable to RA but definition and methodology have been more fully developed by James Beebe; process intended to create an initial understanding of a situation, based on insider's perspectives, where time and money are

	limiting factors
RAR (Rapid Assessment and Response) (WHO, 2010)	Comprehensive assessment of a public health issue including resource identification, planning, development, and implementation of interventions
RARE (Rapid Assessment, Response, and Evaluation) (Needle et al., 2003)	Crises response situations; designed for U.S. (developed country) context
REA (Rapid Ethnographic Assessment) (Trotter et al., 2001)	Focuses on addressing public health issues, especially in developing countries
REAM (Rapid Evaluation and Assessment Methods) (McNall and Foster-Fishman, 2007)	Methods for assessment and evaluation that promise "speed and trustworthiness"
REM (Rapid Evaluation Methods) (McNall and Foster-Fishman, 2007; Anker et al., 1993)	Developed by WHO to assess health care facilities and services and suggest "corrective action" using survey and observation techniques
RFE (Rapid Feedback Evaluation) (McNall and Foster-Fishman, 2007)	Useful in evaluating programs and influencing programmatic decision-making
RRA (Rapid Rural Assessment)(McNall and Foster-Fishman, 2007)	Pioneer of rapid assessment methods; established in 1970s/80s in response to recognition of flawed development efforts
RTE (Real Time Evaluation) (McNall and Foster-Fishman, 2007)	Useful in humanitarian emergency response situations; increased use in the 1990s

Appendix 2-Daily Evaluation Questions with the RAP Team

1. What was difficult about the process today?
2. What was the best part about the process today?
3. Did you feel like you were collaborating or just participating? In what ways?
4. What would make you feel like you were more of a leader in this process?
5. How did this process help to uncover something else about the problem that we did not previously know?
6. Comment about working together as a community member and a PCMI

Appendix 3-Evaluation Questions for Follow-up with RAP Team

1. Thinking back on the methods we used in January, which methods were most useful for uncovering and understanding community problems (community needs)?
2. Could you use these methods to find out about other issues/problems in the community? How?
3. Did you feel the RAP process was a collaborative effort? Did you feel like a collaborator or a participant? Please explain.
4. How could the process have involved your ideas more?
5. A PCMI student is not from your community, what are the best strategies he could use to integrate into the community, to identify projects/problems to work on, and to identify people to work with?
6. Have you done any project-related activities since we finished the RAP? Explain. Why/why not?
7. What was the impact of doing this project? (On you or the community or both?
8. What other questions can you think of, or what comments do you have, that are important when thinking about the evaluation of this methodology and of the findings that we made? (*You are still an active part of the design of this project so as a project member what is important for us to evaluate about the process?)*

Appendix 4-PCMI Interview Questions

Guatemala PCMI Student Interview Topics

1. When someone asks you what your PC service in Guatemala was like, what do you tell them?
2. Tell me about your Peace Corps assignment and major community project(s)?
3. Describe the PC Guatemala cultural and community entry training?
4. What was the impact of Bill Rose's and Blair Orr's classes at MTU on your PC work (if any)? Or other preparatory PC seminars while at MTU?
5. Did you use social science methods in your community or research work?
6. What was life like during your first 3-6 months when you first got to site?
7. Would you consider your PC community work "successful" (i.e. creating a significant and/or lasting impact)? Why or why not?
8. What was your relationship like with your APCD? Do you feel like you got support from PC Guatemala office in your community project work?
9. What was your relationship like with your MTU advisor? Do you feel like you got support from your advisor, department, MTU in general while you were off campus?
10. Tell me about your master's thesis work? Did your master's research and PC community project overlap?

Appendix 5-IRB Approval Application

Mariah Maggio

Application for approval to use human subjects in research

Project Title: Water Conservation Perspectives: Using Rapid Assessment Process to Encourage Collaborative Peace Corps Master's International Development Work

A. Brief description of project

This research project was initiated because of an expressed interest of interdisciplinary collaboration between a Peace Corps Masters International (PCMI) faculty advisor in the Geological Engineering and Sciences department and a faculty member and me in the Social Science department. It was formulated as a response to answering the question of, "how useful is it for science and engineering PCMIs to use social science methods to create Peace Corps (PC) projects that are more sustainable?" The research is composed of two elements: a project for a client embedded in a research study which seeks to analyze the role of the Michigan Technological University (MTU) PCMI students' development projects in Guatemala. Part of this project will involve interviews for which the IRB approval is required. The project is being done as a graduate student thesis project for obtaining a degree in environmental policy.

Social scientists, as well as other professionals in engineering and physical science disciplines, recognize the need to build technical design projects on a foundation of cultural understanding and community collaboration. One proposed way to continuously improve the impact and success of a PCMI community project is to integrate social science methodologies which foster deeper understanding of community and cultural dynamics which form the foundation of well designed solutions.

One goal of the research is to test a set of social science tools applied systematically to the issue of water resources quality and management at the site of a PCMI student and to use this case study to provide a preliminary analysis of the challenges faced by PCMI students in their role as international development workers and

the potential utility of using social science methodologies. The currently serving PCMI student involved in this research is working on a volcanology-based master's research topic and has been assigned to work on Sustainable Community Tourism in his assigned community of Calderas, Amatitlan, Guatemala. His community is situated on the shores of a volcanic mountain lake and water conservation issues have been identified as a focus for a possible development project.

Using the rapid assessment in Guatemala as a case study, all nine PCMI students who have been assigned to work in Guatemala will be interviewed to provide a broader understanding of the experiences of the Peace Corps Volunteers (PCVs) in implementing PC community-based projects. The PCMI faculty advisors and the PC Guatemala project supervisor will also be interviewed to gain insight into their experiences working with the MTU PCMI students. This element is intended to situate the rapid assessment case study in the context of the MTU PCMI relationship with the PC Guatemala program.

The research consists of three phases, the first being an intensive four week rapid assessment fieldwork campaign (which will utilize formal interviews), the second being continuous monitoring, evaluation, and analysis of fieldwork activities and outcomes, and the third phase will include interviews with the nine current and returned Peace Corps Master's International students who have served in Guatemala for their Peace Corps assignments, their two faculty advisors, and the Guatemalan PC program coordinator. The rapid assessment will employ a range of ethnographic methodological tools including semi-structures interviews, participant observation, community mapping, focus group discussions, existing data and document assessment, water resources inventory, mini-surveys, and action planning. For purposes of the IRB review, only phases 1 and 3 will utilize semi-structured interviews and or/focus groups, and should be subject to signature of informed consent forms or oral consent.

This research is intended to be beneficial on several different levels. The information collected from the PCMI student's community will help him to better understand the cultural context of water issues and therefore potentially be able to design and implement a Peace Corps project which will be more collaborative with his local counterparts and more sustainable after he has left. The information gathered from the

PCMI interviews will provide insights about the strengths and challenges of PCMI development work in Guatemala and possibilities for the ongoing MTU and PC Guatemala collaboration.

B. Procedures to be followed

As previously stated, the research methods are separated into three phases. The data will be collected using a variety of traditional ethnographic methods, both qualitative and quantitative. Rapid ethnographic assessments are designed to apply the principles of ethnographic fieldwork to situations where time and financial limitations make doing a traditional prolonged study impractical. A defining characteristic of rapid assessments is that the tools used are adapted to the local context and situation and have an element of flexibility to accommodate the needs of the community involved in the assessment. Therefore, the final number of each type of method to be used cannot be confirmed at this stage in the project. However, I will provide the details of the possible methods to be used, which are subject to IRB approval, and explain what procedures govern their use.

For each type of method the procedure for collecting the data and maintaining the appropriate use, protection, and confidentiality of the information will be consistent. All participants will be given the opportunity to provide either written or verbal consent to participate in the research. All participants will be made to feel free to decline to answer any questions or excuse themselves from research-focused activities at any time without fear of penalty, alienation, or social repercussions. The participants in the fieldwork phase will be mainly community members comprised of mothers, heads of households, water committee members, and those with knowledge of the community's history and resources and land use. Before engaging participants in any type of research activity, the purpose of the research will be explained and they will be given oral and/or written consent forms in their local language. Anyone who does not give their consent will not be included in the research project. The consent forms (or record of oral consent) will be collected, recorded, and kept in a secure place.

All data will be collected using the following: 1) field notes which will be compiled into a fieldwork log, 2) tape recordings, 3) photographs, 4) and email communication. The interviews, observations, and focus group discussions will be

recorded using codes for individual participants so that their anonymity is maintained. All data will be stored either in a computer that is password protected or in a logbook and notebooks that will be kept in a suitcase with a lock while in the field, and in a locked office when back at MTU.

Interviews

Rapid assessments rely heavily on the use of semi-structured, open-ended interviews. Tentatively this project will include 8-10 key informant interviews with community members identified as having a deep level of knowledge about the issues of water and water management. The interviews will explore different aspects of the issues of water conservation in the community, including but not limited to: how water is used, what water is used for, who collects water, who maintains water infrastructure, how water resources are managed, existing sanitation practices and facilities, cultural significance of water, knowledge of hygiene practices, knowledge of health issues, perceived threats to water resources, perceptions of the lake, past experiences with water development projects.

All interviews during the fieldwork phase will be recorded and analyzed by myself and the PCMI student. The data from the interviews will be grouped into themes and any identifiers of the participant, be it name, position in the community, or physical location within the community, will be translated into a code or pseudonym which will not reveal their identities.

For phase 3, interviews with the PCMI students at MTU will be recorded, transcribed, and coded. The information to be gathered from the interviews will be used to identify trends and patterns and no consultants' identity is necessary to analyze or present the data that are collected. The types of information sought in these interviews includes the following: 1) reflections on their experiences as a new PCV in their community, 2) what tools they used to understand their community, 3) how they identified who they worked with, 4) challenges of implementing a community project, and 5) perceptions of how useful their professional skills were in implementing their community project. The PCMI faculty advisors will be asked questions related to: 1)

what the perceived effectiveness of the PCMI student's project was, 2) their interaction with the PCMI student, and 3) interaction with PC Guatemala staff.

Participant observation

Interactive participant observation is another important aspect of rapid assessments where I will be participating with the PCMI student in certain activities and not only making observations about what is taking place, but also making observations about our own role in the engagement, in addition to having the freedom to ask questions about for example, what is happening or what the meaning of something may be. Oral consent will be collected from all community members involved in participant observation activities.

Focus group discussions

Focus group discussions will be used primarily at the beginning and end of the first research phase. The first group gathering will be organized in order to establish a general sense of the perceptions and ideas regarding water issues. The selection of these participants will be done by the PCMI student and his counterparts in the community. Later focus groups will be held to report of initial findings from the data collection and to begin brainstorming about possible solutions and strategies for action. Additional focus group discussions may be added as trends or divergent ideas materialize from observations, interviews and other activities and would be more appropriately or effectively discussed in non-interview settings. These discussions will be recorded and possibly transcribed at a later time, but the in-field analysis will be done by having the PCMI student and the other rapid assessment team members take notes during the session which are visible to the group followed by analysis of the proceedings and findings from the discussion immediately after the event. These notes will be stored in the same secure place as the logbook and field notebooks.

Monitoring and evaluation

Rapid assessments are meant to be an initial phase for community interaction and intervention. Thus, the end of the fieldwork phase will not be the end of the interaction between me and the PCMI student and his community. A rapid assessment for a PCMI student, it is a starting point to build on previous training and existing information and to

continue to understand the community and the problems identified in order to perpetuate further exploration of issues or to establish strategies for designing and implementing solutions. During phase 2, from the end of January 2011 to April 2011, a system of interactive communication will be agreed upon between me and the PCMI student. We will strive for weekly email updates which will be recorded into research log and stored in a secure place on my computer. Emails will be entered into the research log and deleted from the email inbox once they are transferred. Text messaging will be an integral part of this phase as this mode of communication is 1) less expensive for the PCMI student, 2) is more reliable for its consistent availability when compared to internet access, and 3) is a culturally acceptable way of communicating in real time and will promote more frequent exchanges. All text messages will be recorded in the research log and deleted from the cellular device once they are recorded.

Research benefits

The community and the PCMI student in Guatemala, as well as the PCMI advisors, and the PC program director in Guatemala will benefit from this research by learning about the current water issues of one community and the challenges and strengths of the relationships between PCMI students and their community, program coordinator, and faculty advisor as they are working on community-based development projects. The individuals involved in the research will benefit from a small scale analysis of their programs and interactions which will only serve to strengthen the programs, collaboration, and impacts of the work that PCMI students at MTU are involved in.

C. Potential risks

There will always be potential for risks when placing human beings at the center of a research project. There is minimal potential for risks for those who participate in this research project however because the topics to be discussed are not extremely sensitive and involve information dealt with by the participants on a regular basis. All data collected is intended to be used for general analysis of experiences and observations and therefore will not reveal any participant's identity.

Principles and practices of being culturally sensitive will be maintained at all times during the fieldwork process. I have lived and worked in over ten countries and

have had extensive cultural training which will limit any negative impacts of cross-cultural communication to those involved in our research interactions.

Even though the majority of the questions will be benign during the fieldwork phase, there is limited potential risk of psychological and social discomfort for community participants due to the nature of the examination of water resources issues often dealing with behaviors and practices. Where these potentially uncomfortable issues are encountered, participants will have the ability to refuse to answer, or if they choose to answer they will have assurance that their answers will not be shared in a way that no one would be able to discern who provided that information.

One element of this research seeks to analyze the role of the PCMI student in international development work, particularly through information gathered during phase 3. Any programmatic evaluation creates potential for negative feedback to be exposed about the performance and attitude of the participant or experiences with other stakeholders involved. However, this research aims to provide a thoughtful and constructive analysis of general trends and experiences, so there is no need to reveal the identity of any of the participants. Their answers will be treated as general information and their identities and interviews will be protected. All computer files will be password protected and all notes will be stored in a secure location and all names and potential identifiers of consultants will be coded.

There are potential risks to the participants who are affiliated with MTU because they are a small sample of people who are easily recognizable as PCMI students involved in PC Guatemala or as PCMI advisors and coordinators. Although direct responses will be presented anonymously, there is potential for these participants to be recognized. Because the research is narrowly designed to examine the program in Guatemala, there are no alternative methods to increase the sample size of the interviewees. Results presented in the final thesis will discuss general patterns and shared experiences or challenges but will not indicate any individual respondent or their advisor or the departments they are affiliated with. Nevertheless, the participants who participate in these interviews will be given consent forms and will be allowed to review the references

made about them prior to presentation of the results to ensure their anonymity and comfort with how they are represented.

D. Informed consent form

To ensure that all of the participants understand the research and their role in participating, and the potential risks to them, oral consent will be used during the fieldwork phase. I am requesting a waiver of written consent for all participants during the fieldwork phase due to the fact that limited literacy in the community may make written consent forms a barrier to participation and be inappropriate for the community-based research setting. In lieu of written consent, oral consent will be collected from the participants and recorded in the field logbook. The Spanish translation of the oral consent was translated by Miriam Rios Sanchez, MTU PhD student and native of Colombia.

Written consent forms will be obtained for the nine to twelve PCMI consultants who will be interviewed during the third phase of the research, based on the MTU Consent Form guidelines.

Appendix 6-IRB Application Oral Consent Form

Mariah Maggio

Application for approval to use human subjects in research-Oral consent
Oral consent to be a participant in collaborative rapid assessment research

Water Conservation Perspectives: Using Rapid Assessment Process to Encourage Collaborative Peace Corps Master's International Development Work
English:

As the Peace Corps Volunteer (PCV) assigned to your community working on Sustainable Community Tourism and volcanology, I am working together with a peer from my home university to conduct research about water resource issues. Mariah will be here for four weeks working with us. Our home university, Michigan Technological University, is supporting Mariah's research project because they are interested in seeing what the impact is of using social science tools in work being carried out by graduate students, like myself, who are professionals in science and engineering. Social science tools include things like interviews, group discussions, participant observations, and surveys. We would like to ask you questions about how you use water, challenges and advantages of water resources in your community, and the people in charge of water management.

Your answers may be used to create project ideas and action strategies, and may also be used in written reports presented to our fellow students and teachers at our university. Your answers will be anonymous (kept secret) as well as your name and anything that might describe who you are. No one will know what your answers are. There is no obligation to answer our questions nor is there any penalty if you do not want to participate. You can choose to not answer any question or stop this conversation at any

time. There is no incentive to participate; we are just looking for community members who want to share their experiences, stories, concerns, and ideas. We would also like to document what we are learning with photographs in order to allow people to understand your community better. Please tell me if it would be okay to take pictures or if you would prefer that we did not. **We may use a tape recorder to record our conversations today so that we can better remember later what you said, so that we represent your ideas correctly. Please tell me if it would be okay to use a tape recorder for this conversation or if you would rather we didn't record you.**

Español:
Consentimiento oral para ser participante en una investigación cooperativa de evaluación rápida
Aspectos de la conservación del agua: Usando procesos de evaluación inmediata para fortalecer los trabajos en desarrollo cooperativo del programa de Másters Internacional de los Cuerpos de Paz

Como voluntario de cuerpo de paz, asignado a su comunidad y trabajando en Turismo Sostenible y Comunitario y Vulcanología, me encuentro trabajando con un compañero de mi Universidad para realizar una investigación acerca de los problemas relacionados con el agua. Mariah estará acá durante cuatro semanas trabajando con nosotros. Nuestra Universidad, La Universidad Tecnológica de Michigan está apoyando el proyecto de investigación de Mariah, ya que ellos se encuentran interesados en observar cual es el impacto de usar elementos de ciencias sociales en el trabajo desarrollado por estudiantes de maestría como yo, que somos profesionales en ciencias naturales e ingeniería. Las técnicas usadas en ciencias sociales incluyen elementos como entrevistas, discusiones en grupo, observaciones de los participantes y encuestas. Nos gustaría hacerles algunas preguntas acerca de cómo usa usted el agua, cuales son las dificultades y los beneficios del agua en su comunidad, y acerca de quienes están a cargo del manejo del agua.

Sus respuestas van a ser usadas para crear ideas de proyectos y estrategias. Tambien podrán ser usadas en informes escritos que van a ser presentados a nuestros compañeros y profesores de nuestra Universidad. Sus respuestas serán anónimas (sin autor). Su nombre o ningún dato que pueda describir quien es usted será usado. Nadie sabrá que respuestas usted nos ha dado. Usted no tiene obligación de responder ninguna pregunta y puede parar esta conversación cuando quiera. No tenemos ninguna gratificación por la participación. Solamente estamos buscando miembros de la comunidad que quieran compartir sus experiencias, historias, preocupaciones e ideas con nosotros. Nos gustaría también documentar lo que estamos aprendiendo con fotografías, para que la gente pueda entender mejor su comunidad. Por favor dígame si nos permite tomar fotos de usted o si prefiere que no lo hagamos. **Podremos usar grabadora para grabar nuestra conversación de hoy porque así podremos recordar mejor lo que usted nos ha dicho y de esa manera podemos escribir sus ideas correctamente. Por favor díganos si esta bien que usemos la grabadora para esta conversación o si prefiere que no lo hagamos.**

Appendix 7-IRB Application Written Consent Form

Mariah Maggio

Application for approval to use human subjects in research-Written consent form

TITLE: Water Conservation Perspectives: Using Rapid Assessment Process to Encourage Collaborative Peace Corps Master's International Development Work

RESEARCHERS: Mariah Maggio, MS candidate, Social Sciences; Carol MacLennan, faculty advisor, Social Sciences

PURPOSE: The purpose of this research study is to conduct a preliminary assessment of the role of Michigan Technological University (MTU) Peace Corps Master's International (PCMI) students in development work by highlighting the experiences of the nine PCMI students who have served in Guatemala and their supervisors and advisors, accompanied by a case study with a currently serving PCMI student to test the utility of the systematic use of social science through a preliminary analysis of a rapid assessment of water resource issues.

REASON FOR INVITATION: You have been identified as a participant in this research because you are currently are serving as a PCMI student/or at one time served as a PCMI student in Guatemala or have worked with an MTU PCMI student who has served in Guatemala.

PROCEDURES: You will be asked to participate in one semi-structured, open-ended interview conducted by the primary researcher. Depending on the location of you and the researcher, these interviews may occur by in person, over the phone, or via Skype video

call. Any communication costs incurred will be taken care of by the primary researcher. **These interviews will be tape recorded, transcribed and coded. The tapes will be labeled in a way to ensure anonymity, no one but the researcher will listen to them, and they will be stored in a safe place during the research period and erased after the research is completed. The transcriptions will be stored confidentially in a password protected computer.** The interview topics will be sent to you, via email, one week prior to the scheduled interview time in order for you to familiarize yourself with the potential interview questions. The interviews will be approximately one hour in length. You will be given the opportunity to review the results before they are presented to ensure proper representation of your ideas and absence of any identifying information. The results will be presented to the MTU PCMI community and to the Peace Corps (PC) Guatemala office.

RISK: There is minimal potential risk to you for agreeing to participate in this research. Your name or associated answers will be kept confidential. The objective of the research is to gather general trends and experiential information, not to connect the answers given with the consultant who provided them or to provide any location or time specific examples. The results will be presented in a way to guard against any recognition of individual responses.

POTENTIAL BENEFITS TO YOU: This research will provide an opportunity for you to reflect on your PCMI experience and to be able to gain insight into how your experiences compare with your fellow PCMI Guatemala colleagues.

POTENTIAL BENEFITS TO SOCIETY: This research is designed to provide small scale analysis of MTU PCMI student experiences in Guatemala which will serve to strengthen the program, collaboration, and sustainable impacts of the development work that PCMI students at MTU are involved with in Guatemala.

VOLUNTARY PARTICIPATION STATEMENT: Your participation in this research study is completely voluntary. You do not have to participate. You may stop at any time without penalty to you.

PRIVACY and CONFIDENTIALITY STATEMENT: Your name will not be given to anyone other than the research team. All the information collected from you or about you will be kept confidential to the fullest extent allowed by the law. In very rare circumstances, specially authorized university or government officials may be given access to our research records.

RESEARCH STUDY RESULTS: If you wish to learn more about the results of this research study you may request that information by contacting Mariah Maggio (mlmaggio@mtu.edu), Carol MacLennan (camac@mtu.edu), John Gierke (jsgierke@mtu.edu), or Kari Henquinet (kbhenqui@mtu.edu).

QUESTIONS REGARDING THIS STUDY: If you have any questions regarding the research at any time, you may contact the primary researcher, Mariah Maggio, by phone (781.724.4403), by email (mlmaggio@mtu.edu), or by mail (1400 Townsend Drive, AOB 201, Houghton, MI, 49913.

HUMAN SUBJECT RIGHTS: The Michigan Tech Institutional Review Board has reviewed my request to conduct this project. If you have any concerns about your rights in this study, please contact Joanne Polzien of the Michigan Tech-IRB at 906-487-2902 or email jpolzien@mtu.edu.

AGREEMENT TO PARTICIPATE:
By signing this consent form below, you are stating the following:

- The details of this research study have been explained to me including what I am being asked to do and the anticipated risks and benefits;
- I have had an opportunity to have my questions answered;

- I am voluntarily agreeing to participate in the research as described on this form;
- I have been given a copy of this document for my records;
- I may ask more questions or stop participating at any time without penalty.
- I agree to this allow this interview to be tape recorded

(indicate YES or NO by checking the corresponding box below)

- YES
- NO

Print name:

Signature

Date:

Appendix 8-RAP Case Study Schedule of Methods and Activities

Table A.2 RAP case study 2011 detailed schedule of activities

Date	**Activity**
Tuesday, January 3	Arrival at PCMI student's site
Wednesday, January 4	RAP training (1/2 day)
Thursday, January 5	RAP training; PCMI student to Guatemala City with MTU field team
Friday, January 6	RAP training; focus group planning; water testing training
Saturday, January 7	Focus group preparation; focus group; analysis of
Sunday, January 8	Review of week; preparation for following week; hiked Pacaya
Monday, January 9	Designed interview questions; interview training; identified interviewees; community mapping exercise
Tuesday, January 10	Interviews #1, #2, #3; processed data collection
Wednesday, January 11	Interviews #4, #5; processed data collection
Thursday, January 12	Interview #6; review of data and methods; household survey planning
Friday, January 13	HH survey training; Interview #7 (PCMI student at PC meeting)
Saturday, January 14	Interview #8; processed data collection; work on field notes
Sunday, January 15	No RAP team work; participant observation; work on field notes
Monday, January 16	Interview #9, #10; processed data collection

Tuesday, January 17	Interview#11, #12; processed data collection
Wednesday, January 18	Analysis of camera project photos; report planning; analysis of data collected
Thursday, January 19	Analysis; action planning; final logistics; zip line!
Friday, January 20	Cleaning; packing; organizing notes; evaluation of methods
Saturday, January 21	Printing in Antigua
Sunday, January 22	Printing in Antigua; evaluation interview with PCMI student
Monday, January 23	Return to Houghton

Appendix 9-Key Findings from the RAP Case Study

Table A.3 Final evaluation of the RAP case study investigation of water resources issues in Calderas, Guatemala

Key Finding	Method	Validity	Response & Analysis
1. Absence of collaboration	FG, I	Yes	▪ Lack of encouragement and organization from authorities ▪ Lack of personal initiative ▪ Lack of resources, including money ▪ Lack of credibility (especially when promises are made from outside sources) ▪ Lack of communication within the community ▪ No assistance from other communities or from the national park ▪ Concentration/monopoly of power
2. Water use and management 5-8 barrels per day	DO, I, S, P	Yes (with assumptions based on observations)	▪ No meters ▪ No control ▪ No education (for example in school regarding water conservation ▪ Most people have household connections

			▪ Most people use some form of water treatment for drinking water ▪ Lack of personal initiative ▪ Expectation of external solution and outside help
3. Population growth	DO, KI, I , S	Yes	▪ Big families (average 7-9) ▪ Low mortality rate ▪ **Approximately 35 births per year (with 271 families and 80% of the women using birth control, then the remaining 20% of women are having 35 children per year-question of whether this report actually is “high population growth”)
4. Knowledge of the lagoon	FG, I	Yes	▪ Washing laundry and animals are the most significant sources of contamination ▪ The algae (aquatic plants) are considered dirty ▪ Trash is not a priority to mitigate ▪ The lake level is rising, aside from regular rainy/dry season cycles ▪ The lagoon used to be cleaner ▪ The COCODE and the community share

			responsibility for cleaning the lake ▪ Similar understanding of the lagoon ▪ Visual and utilitarian knowledge of the lagoon ▪ Some divergence of understanding with different perspectives of living situations ▪ Only 50% participation in workshops ▪ **"Because people say" formation of opinions and source of information about the lagoon
5. Health	FG, I, KI, S	Yes (+/- because it is a difficult cultural topic to probe)	▪ Children are more vulnerable ▪ Caldereños are healthy ▪ Extensive use of filters because of post-eruption efforts
6. Solutions	FG, I, KI, S	Yes	▪ People understand the solutions needed ▪ People keeping animals should keep them in their house compounds ▪ No more washing directly in the lagoon ▪ Organize groups to clean the lagoon

			▪ The trash collection should be scheduled ▪ COCODE should have a collection that is used for cleaning and maintenance of the lagoon, either from the community and/or from fees collected from the communities which take water from the lagoon
Next Steps			▪ Organize youth to become involved in community issues and in lake cleaning campaigns ▪ Implement environmental lesson in the school ▪ Organize a dual focus group for youth and adults ▪ Create a report for the COCODE based on the RAP findings

DO-direct observation; FG-focus group; I-interview; KI-key informant interview; P-photo activity; S-survey; **-need more information

Appendix 10-RAP Field Guide for PCMI Students *(NOTE: Draft Only)*

A Short Guide to Using RAP for Environmental Problem Solving in an International Development Setting

Important Note: This guide was created after a case study of the RAP was conducted with a PCMI student in 2011 for a master's thesis research project. This guide is intended for use by PCMI students for their PC community projects and general cultural understanding. If you intend to use social data as a part of your Michigan Tech master's thesis work, you must adhere to the integrity of gathering social data by fulfilling all academic requirements for human subjects research. Contact the Michigan Tech PCMI Program Director for more information or help with questions.

Introduction

Rapid Assessment Process (RAP) should be helpful for you to take into your PC community and work collaboratively with locals to develop your understanding of the community context and the issues you may be working on. This guide is intended to be a tool to help you implement a RAP investigation.

(Include list of major points of the RAP that must be adhered to.)

*(**Diagram or table that lists the RAP steps**…"All this equals understanding your community better!")*

Use the RAP as a way to get to know your community better or explore an environmental challenge in the community. A RAP does not mean you are jumping into your project work "too early". Treat it as a tool to use to integrate into your

community in those first three months at site in a meaningful and systematic way. If the idea of a lack of structure for the first few months (or more) bothers you, then use your academic tendencies to understand the community around you in a methodical, thoughtful, and ultimately beneficial way. The RAP is one option to do this.

If you have a site change or your main project veers off track or your counterpart changes, use the RAP to explore a new area you don't know much about or to look at an issue in the community in a new way.

A note on language barrier

You may not be fluent in the national or local language. Use the RAP as an opportunity to listen and define issues in the community based on their terminology, framework, and perspective.

Preparation

Try to engage the support and participation of an individual trained in social science methods. If you live in an urban area or have an association with a university or NGO, this resource may be more readily available. If not, it's ok! You can still do an effective RAP as a non-social scientist if you are prepared and do your homework. You are a resourceful, graduate student with skills and abilities to be a critical thinker and effective researcher.

Define the RAP study question/topic-Use your PC assigned sector initial training as a place to start. If you have an environmental education assignment, or have been introduced to any environmental challenges that exist in the community, think about beginning there.

You need to be careful in this stage of the training not to influence the formation of the RAP problem from his personal perspective. While the student may have an idea about

what is a major problem it is important to provide opportunity for the local RAP team members to frame the problem.

PC prepared you for the general environmental problems in your country/community. Being in the country at your training site provided more insight. Your interactions and observations with your host family and counterparts have also influenced how you understand what is going on. Your RAP team will help you to validate what you already think you know and help you to understand what has already been done in the past or what other efforts are ongoing to solve the problem.

But know that what you learn from the RAP may leave many questions remaining or may lead you in another direction. If your RAP findings hint to another important issue, consider that the RAP might help you develop a successful secondary project or your master's research.

An organized site survey may be important for a PCMI. They can use their PC training on needs assessments as a good starting point

Identify your RAP team members. Use an already established relationship if possible. This does not have to be your official counterpart, although it may be. Be creative. Do you have a host family member who would be willing to work with you? Are there already community members who are interested in what you are doing? Who has been proactive in learning from you and teaching you things already? Do you teach English to anyone informally? Is there a young person hanging around you who is curious and engaged? The answer is probably yes.

Pick a male and a female if possible (and culturally appropriate). Having mixed gender will give you access to different parts of the community. Also consider finding a younger and older team member. Again, having different perspectives and access to different age groups in the community will make your exploration of the community richer. Youth are

a good source of interest and energy. Be aware that their access to leaders might be limited. Their traditional knowledge may differ from that of their elders.

Figure out how you are going to free your RAP team members from their regular duties. If your RAP team members have regular jobs, you may need to compensate them for the RAP days. Offer a certificate for participation. Don't set too many precedents with money. Ask trusted people for best practices that will not perpetuate the view of you as a wealthy American.

Be clear about expectations during the RAP and reinforce them. From what the RAP team members will "get out of being a part of the team" to how you approach people in the community, you need to be clear about the intent of the RAP and not make any promises. Something that will help with this is to find an appropriate local term for it. For example, in a Spanish speaking community, *sondeo rapido*, meaning to probe quickly, might be appropriate. Be careful to not elevate expectations but present what you are doing as an opportunity for community members to participate and contribute to your understanding of their community and its problems. Use humor and humility.

RAP Training

Training and prep provides benefit to a PCMI student's efforts to establish collaborative working relationships in the community.

- Devote three days to training the RAP team on RAP methods. Present possible methods, choose a few methods, train together on the important elements of each method, and create a RAP work plan and schedule.
- *LIST METHODS* to train on-interviews, focus group, community map, GPS, water testing, field notes, cameras, (a more fully developed Guide would walk PCMI students through each methods-Interviewing 101)
- You may find during the RAP team training that there are opportunities to train them in other concepts-scientific method, soil testing, water testing, water cycle,

elements of a map, etc. Remember the Peace Corp's ICE has a wealth of environmental education resources available to you.

- There is difficulty in non-fluency in the language for determination of terminology and concepts. An important part of this training phase was coming to consensus on terminology, meanings, and expectations.
- Remember to reinforce the methods as the RAP progresses.
- The limitations of time and the knowledge that the RAP team leader has will always influence how much can be included in RAP team training.
- You are most likely not a social scientist, nor do you want to be one.

Focus Groups

A focus group is a good first activity for the RAP team. Getting people to show up for meetings is tough in most PC countries. You may invite 10 people, but only 4 show up. Be clear that the intent of the focus group is to gather baseline information about the RAP question or problem you've identified. This activity can help to "test the waters" for how the community views and feels about their environmental challenges. And it's an opportunity for you and your RAP team to work together and get to know each other's facilitating styles, confidence levels, quirks, strengths and weaknesses.

Interviews

Interviews are the MOST IMPORTANT PART OF A RAP. This should be your RAP team's priority activity. You should aim to do 8-10 of these. *Your objective in the interviews is to gain as many diverse stories as possible.*

- Return to all the respondents' homes, discuss and document the results of the water tests, bring copies of photos for them to keep, and give them a small gift as a token of our appreciation for participating (food or some small souvenirs from the U.S. are easy, low-cost ideas).
- Show the interviewees photographs of the community in order to elicit reactions and stories beyond their simple responses to questions asked. The photos were sometimes used as an "icebreaker" after the oral consent was completed. A

creative strategy like this helped the RAP team engage the respondents in a different way, especially for settings where there was not direct sight of the lagoon.

- Try as much as possible to complete all interviews as a RAP team. You will have to adjust as necessary but RAP best practice is to have every RAP member present for every interview.
- The environment, props and placement, having refreshments, being able to see the lagoon, having something to do while talking (like fidgeting with pen after drawing a map, doing laundry, or preparing food), and time of day all contribute to the success of your interviews.
- When interviewing as a team, try to make the discussion as laid back and non-intimidating as possible. Follow up on each other's questions, while someone is jotting a note, someone else can continue talking. Nodding and smiling and making eye contact can go a long way to make people feel comfortable and encourage them to keep talking.
- The setting of the interviews matters. Try to make the respondents as comfortable as possible, which probably means going to them. Have some snacks. If you are talking about something like a lake, try to be somewhere where you can see it. This might help your respondent tell stories and not be intimidated to answer your questions.

Participatory Photo Documentation

- Select several community members to go out and independently document their perspectives on the RAP question.
- Bring along disposable cameras. Or ask someone from home to send them in a care package if you find you cannot buy them in country.
- Make the instructions for the activity clear.
- Agree on a firm plan to return the cameras to the RAP team.

Citizen Science

Participatory research is a great way to get hands-on participation. If there is technical information to be gathered for a community research project or an assessment (especially in water-related environmental contexts), involving community members in that process only strengthens engagement and increases understanding of what the goal of the data gathering is.

Transect walk and community mapping and seasonal calendars

Using community mapping as a central activity was discussed as being useful if it had a meaningful use and some larger context than just doing it to do it. This was certainly a task that could have be completed at any time and used to create an informative visual deliverable.

Documentation and Analysis

- Try to use whatever space is available to display your findings from the RAP methods. The more visual and constantly accessible your information is to all RAP team members' eyes, the better.
- RAPs are meant to be *iterative*, meaning there is analysis of what you learned from one piece before you move on to the next.
- This type of space may not be available to every PCMI student, depending on their living and working spaces, but how the RAP team adapted to and maximized the space at the PCMI's house was very valuable to the RAP's implementation.

Participant and Direct Observation

Participant observation activities are good sources of validation and triangulation of other methods. RAP forces you to not just observe, but analyze your observations and your reactions to those observations and most importantly to document them and actively use that information later.

- While you do this every day as you adjust to living and working in your PC community, the way you *observe* in a RAP forces you to use these instances more systematically and effectively toward a goal of more thorough understanding.
    - If you sit by a well and observe or carry water with local women from the river or sit with a group of men outside a store or accompany a farmer in his field, how do you reflect on and use what you learned from what you saw and heard?
    - Will you remember some small detail a year later?
    - Do you reflect on not only what you saw but how you fit into that interaction, i.e. did you affect the way they behaved just by being there, were you already convinced you knew why they did something.
- Being objective and reflective requires work and attention and intent and practice.
- Use participant observation as a main RAP activity in the early days if language is a large barrier for you.

(Section on Final RAP Analysis and Next Steps)

Some Final Notes

- Include a RAP study into your SPA grant application. One idea is to use a RAP to either apply for a SPA grant-to show that you understand the problem you are asking for assistance and to show you have local collaboration for the proposed project-or write about the intention of doing a RAP into your SPA grant application to show that you have a strategy to develop good background understanding and local cooperation on your proposed project.
- Find someone to be accountable to-be it your APCD, advisor, HCN counterpart, PCMI Program Director, other PCVs or PCMIs
- Integrate interactive science data gathering methods (citizen science) to increase community participation in the RAP.

RAP Resources (with citations)

- World Health Organization. 2003. *Rapid Assessment and Response Technical Guide TG-RAR*. Reference number WHO/HIV/2002.22. Geneva: WHO.
- Beebe, James. 2001. *Rapid assessment process: An introduction*. Walnut Creek, CA: AltaMira Press.
- ***(Include references to good resources for ethnographic methods- Interview techniques, seasonal calendar and community mapping, etc.)***
- ***(PML water testing resources)***