FSM Integrated Water Resources Management (IWRM) Project Project Final Report By The Conservation Society of Pohnpei (CSP) Submitted June 27, 2011

Executive Summary:

The Conservation Society of Pohnpei (CSP)—in cooperation with Nett District Government, Nett traditional leadership, Nett communities, and the Environmental Protection Agency (EPA)—was able to complete the land use pollution survey project in a two month period from April – May 2011. The intention of this project was to survey all contamination sources of pollution such as pit latrines, piggeries, agriculture sites, and any other structures and activities near the Nett waterways that may contribute pollution to the water or rivers in Meitik, Eirke and Nanpil, from the forest all the way down to the Dausokele estuary, defined as the primary site for this project. CSP was able to successfully execute the project by completing the first objective, which was consultation, with the Nett government, traditional leaders, community members, and other parties. The second objective was to conduct the field survey and map out the sources of pollution. CSP was able to complete all the required consultations with Nett District Government, traditional leadership such as high-ranking chief Iso Nahnken of Nett, and Nett communities and village chiefs. After all consultations were done, CSP received full support and cooperation from Nett District Government, Nett traditional leadership and village chiefs on the project's direction and implementation.



The initial consultation with Nett District Government representatives, the District Administrator, and Nett Resource Management Committee members.



The second meeting, with high-ranking Nett traditional leader, Iso Nahnken Iriarte.

Project Objectives and Deliverables:

1. Community liaison and relationship building for the Nett Watershed Demonstration Project

Specific activities to include:

a) Consultation with village chiefs on Nett Watershed boundary and planned work on the GEF IWRM Demonstration Project conducted by April 2011

CSP successfully administered several meetings with the Nett District Administrator, Nett Resource Management Committee, Nett traditional leaders and village chiefs to start planning the land use pollution survey project. Overall, the community consultation and engagement process proceeded smoothly with positive support and feedback received from all relevant stakeholders involved in the project's consultative phase. As a result both the high chief Iso Nahnken and the district government personally got involved and facilitated active involvement of village chiefs to lead their communities and provided instrumental support to enable successful implementation of the project. Communities fully owned the project and actively participated to carry out the objectives as a result.

b) Community consultation and agreement on the role of Nanpil, Eirke, Meitik, and Kahmar Villages in the GEF IWRM Demonstration Project conducted by April 2011

Specific outputs to include:

I. Summary reports of consultation meetings including record of key concerns, watershed issues, and agreements reached

On April 11, 2011, the first consultation was held at the Nett District Government office, including the Nett District Administrator, Nett Resource Management Committee members, CSP and EPA. During this session, CSP was able to introduce the project to Nett District Government and Resource Management Committee. The project goal and objectives were shared to prioritize the main focus site of the project, dependent on the project resources available and our timeline of operation. This exercise was valuable in gaining community and Nett leadership feedback to identifying three critical areas of focus at forest and rivers in Eirke, Meitik and Nanpil sites. The following key concerns were raised during this initial meeting:

- 1. Whether the project would help to remove the sources of pollution that are contaminating the rivers or stop at identifying the sources of the pollution;
- 2. The exclusion of two rivers in the Nett watershed, one that flows down and ends at Luwi Bridge close to Pohnpei State Hospital and another that flows down from PICS high school and ends at Deuwenou Bridge, beside new Ace office supply store. These two rivers are heavily populated at their banks and highly contaminated in the communities' view, and should be included for source mapping in the future.

More and more people are building residences and communities close to rivers and shorelines, but neglecting the importance of safe water to their livelihoods. The attendees of the meeting agreed to stick with the objectives of the project and restrict the survey project to Nanpil, Eirke, and Meitik, and included Kahmar and Nansoakoasok villages. After completing this project, partners from Nett District Government, CSP and EPA will strive to address the remaining rivers in Nett if additional funds become available from other sources or if funds from IWRM project can support expansion of this project's scope and coverage.

On April 12, 2011, CSP and EPA were able to arrange a lunch meeting with Iso Nahnken of Nett, a high-ranking traditional leader in Nett Kingdom. The purpose of this lunch meeting was to introduce the land use pollution source mapping survey project to Iso Nahnken of Nett in order to get full support from both Nett Government and Nett traditional leaders. Key concerns from this session were noted:

- 1. Why is the project only focused in Eirke, Meitik and Nanpil?
- 2. How will the people of Nett will benefit from this project?
- 3. Who will be involved in this project?
- 4. What is the role of Nett District Government in this project?
- 5. How to address issues regarding the upland forest clearing due to sakau farming;
- 6. Ways to address pit latrines and piggeries near the riverbanks contaminating the rivers, especially the Nanpil River, which provides 70% of the water used by Pohnpei residents.

As a result of community prioritization, this project primarily focused on Eirke, Meitik and Nanpil, as they are the three main watersheds in Nett that ultimately link with the Dausokele estuary. More importantly, Nanpil ranked high as a focus site because it is the primary public water source supplier to the public water system for residents in Nett, U, Sokehs and Kolonia town. This project will help the people of Nett to understand where the sources of watershed pollution are originating and allow the Nett District Government to find a starting point for public work improvement projects aimed at reducing the sources of pollution in the watersheds. Nett District Government, traditional leaders, village chiefs, communities, CSP and EPA were involved with the project from start to finish. The Nett District Government provided at least three members from the Nett Resource Management Committee to participate in the field survey. Each village chief also assigned two people from their village to participate in the project.

Pohnpei established the Watershed Forest Reserve and Mangrove Act of 1987 to protect its watersheds. It also passed a state law prohibiting the building of pit latrines and pigpens within 50 meters of riverbanks and shorelines, but lack of enforcement is a major problem. Attendees at this meeting were very concerned with what can be done to prevent or decrease the number of pollution sources impacting their community waters.

The third meeting was held at Nett District Government on April 14, 2011. This meeting included all the village chiefs from Nett, Nett District Government, Iso Nahnken of Nett, CSP and state EPA. Since the project was already introduced to the Nett District Administrator, Resource Management Committee and Iso nahnken of Nett, it was much easier to convey details to the rest of the participants. The project was well received by the village chiefs. After the project introduction, open discussion and comments from the all the participants were welcomed. Concerns raised by the village chiefs noted below:

- 1. What about places like Dolokapw, Luwi, Dolonier, Pohndien and Nanpeper—these places have rivers and many people living along these sites?
- 2. After we survey all the sources of pollution and produce the map from the results of the field survey, what will be next step to address these issues according to the data collected?
- 3. Participants noted that water pollution is not found only in Eirke, Meitik and Nanpil: it's everywhere in the Nett area;
- 4. When will the project need to start and what is its duration?
- 5. Who will be involved in this project from start to finish?

CSP and EPA were able to address the concerns of the village chiefs by further explaining the objectives and activities of the project. The land use pollution survey will be focused in Eirke, Meitik and Nanpil with additional effort to address two other villages within the tight timeline of April to May 2011. The project will need two people from each village to work with CSP and EPA to deliver the project. At this meeting, the group agreed to do the project in Eirke, Meitik, Nanpil and include Nansoakoasok, Lehdau and Kahmar since they are part of these areas. The remaining villages in Nett will hopefully be included in future land use and pollution survey projects, building on the success of this project. Twelve community members from the aforementioned Nett communities were identified during this meeting

and thus funded by the IWRM fund as a stipend cost. This group agreed to hold a follow up meeting after all data from the field survey is compiled and integrated into the source pollutant GIS map.

The fourth meeting was held on April 19, 2011 at the Conservation Society of Pohnpei (CSP) office. Participants were Nett community representatives, EPA staff and CSP staff. There were 12 representatives from the Nett communities present, one member of Nett District Government, two EPA staff members and five staff members from CSP. Discussion topics included: when and where to start the field surveys; how to execute the field survey within the detailed scope of the project; the role of the community representatives during the field survey; and the contracting of the community representatives as part of the project team. The group agreed that the field survey would start during the last week of April 2011, beginning at the bottom of the watershed and moving up to the forest where the rivers originate. There were three groups formed during this project implementation planning:

- The Eirke group, with one CSP staff and two EPA staff
- The Meitik and Nansoakoasok group, with one CSP staff and two EPA staff
- The Nanpil, Lehdau and Kahmar group, with one CSP and two EPA staff

Each group visited its assigned field sites and followed the entire river and all branches of the streams, looking for all possible pollution sources and collecting GPS points. Community reps were instrumental in guiding the team through all visits when the survey was being conducted. CSP and EPA were responsible for recording all data, including the GPS coordinates for each site. The community reps agreed to the field team schedule and signed off their agreements to the project scope and their individual contracts to undertake the project mission.

On May 12, 2011, CSP invited community reps and EPA staff to share the results of the data that was used to produce the land use pollution map. CSP in partnership with EPA, the IWRM project and Nett District Government was able to launch the pollution source map to Nett traditional leaders, including Iso Nahnken, village chiefs and Nett community members. All of the data was collected, recorded, analyzed, and displayed in the GIS map. One concern shared by the field team was that many houses along the riverbanks did not have outhouses, indicating that some people may be using the rivers and streams as a toilet. Another concern was the discovery of pollution sources near the origin of a water source, high in the forest, where there is a piggery and shower facilities directly situated on the riverbank. The group agreed to look into these issues as soon as possible, especially this particular pollution site in the upland forest of Nett. It was a successful meeting, ending with a positive response from Nett community representatives, and inspiring Nett government and traditional leaders to mobilize resources and commit action to improve water quality issues within Nett Municipality.

2. Using data collected by CSP and EPA, produce a comprehensive GIS map depicting key land use, pollutant sources (current and potential), riparian zones, and water uses in the Nett Watershed.

Specific activities to include:

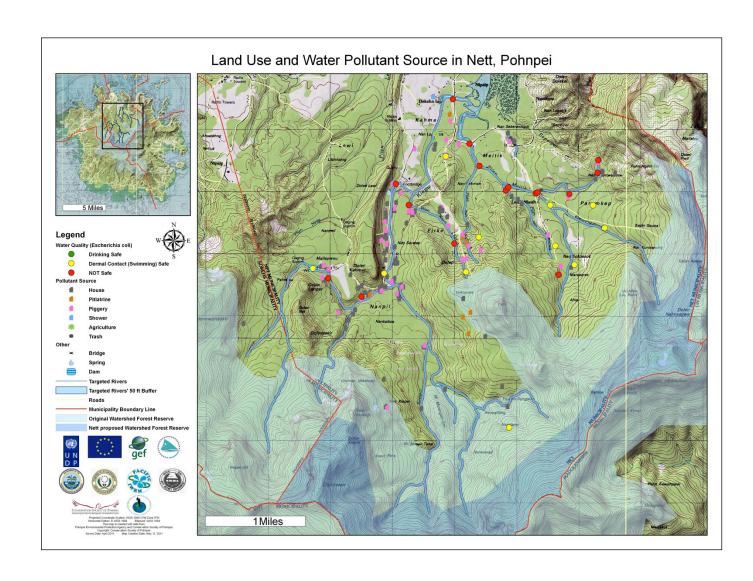
 a) Production of a GIS map of land uses--household farms, piggeries, community gardens (e.g. taro, sakau), pollutant sources (current and potential), distribution and extend of riparian zones, and water uses/sites --in the Nett Watershed by end May 2011

Specific outputs to include:

- I. GIS map of land use, pollutant sources (current and potential), riparian zones, and water uses in the Nett Watershed reviewed and endorsed by IWRM Steering Committee by end May 2011
- Land use and water pollutant source map in Nett, Pohnpei, resulting from a survey done by
 Conservation Society of Pohnpei and EPA, in partnership with traditional leaders of Nett
 Kingdom, Nett District Government and community representatives, was successfully completed
 and integrated in pollutant source mapping. We were able to produce the map incorporating
 the following data from the fieldwork.
- Additionally we incorporated the GIS data produced and made this information available through the FSM GIS Spatial Data Clearinghouse hosted at CSP. This map can be retrieved publicly at: www.geomicronesia.fm



CSP staff record a GPS coordinate at a pigpen in Nanpil, Nett.



Results of the CSP and EPA Survey of Pollutant Sources in Nett Community

	Total number of Pollution Sources	Number of Houses (Homes)	Number of Piggeries	Number of Trash sites	Number of Agriculture sites	Number of Outhouses (Pit Latrines)	Number of Shower sites
Meitik	25	17	4	3	1	0	0
Nansoakoasoak	4	0	3	1	0	0	0
Eirike	32	11	13	1	0	7	0
Kahmar	52	37	12	0	2	0	1
Nanpil	42	30	11	0	0	1	0
Total	155	95	43	5	3	8	1

The data in the following table was compiled according to Pohnpei State EPA water quality standard levels, based on the amount of E. Coli (Escherichia Coliform) present in the water samples. Water is considered safe for drinking at a level of 0 MPN (Most Probable Number) per 100 ml sample. Water is considered safe for dermal contact (swimming, bathing, etc.) at a level of less than 576 MPN per 100 ml sample and becomes unsafe for dermal contact at any level above 576 MPN per 100 ml sample. (The MPN—Most Probable Number—measure is a statistical test used to estimate the number of bacteria present in a sample.)

EPA Water Sample Sites in Nett Community – Results of Water Quality Testing

	Total number of sites	Number of sites – Drinking safe	Number of sites – Dermal Contact safe	Number of sites – Not safe for Dermal Contact
Meitik	13	0	4	9
Nansoakoasoak	2	0	1	1
Eirike	7	0	5	2
Kahmar	4	0	1	3
Nanpil	3	0	1	2
Total	29	0	12	17

Challenges and lessons learned:

- Project implementation timeline was strict and added unique challenges in implementing the
 project but overall we were able to meet the goal and objectives of the project. Based on this
 lesson it is extremely important that future engagement with IWRM project activities be time
 sensitive to ensure smooth flow and sufficient time allowed for project implementation.
- One concern shared by the field team was that many houses along the riverbanks did not have outhouses, indicating that some people may be using the rivers and streams as a toilet.
- Some pollution sources were observed near the origin of a water source, high in the forest, where there is a piggery and shower very close to the water banks. The group agreed to look into these issues and will address them as a top priority for action.
- Visualizing threats utilizing GIS mapping is an absolutely incredible tool to inspire community and leadership action. The results of the fieldwork integrated on source pollutant mapping really caught the attention of Nett leadership.
- Co-management is vital to resource management success and this project has helped set the
 atmosphere for community, government and traditional leadership partnership for effective
 solutions. The people created the environmental impacts we see in Nett, so the solution has to
 incorporate communities for positive change.

Conclusion:

Overall, the project was well implemented through close collaboration with watershed communities in Nett and strong backing by the Nett District Government, with traditional leaders taking full ownership of the project from start to completion. We feel that the project accomplished its prime objectives and goal despite the time constraints we faced in implementing the project. The work we carried out led to the successful production of a pollution site mapping of three major Nett watershed communities. Having the ability to visualize impacts on Nett water resources by the communities involved and the high level local government leaders and traditional leaders in Nett is positive in setting the direction for adaptive management. Utilizing new technology such as GIS to demonstrate water resource impacts has captivated leaders and communities and is already inspiring action for change in Nett to better manage local water resources.

This project strengthened partnerships and created a positive condition for proactive change, aiding community members and Nett local government in leading the charge towards effective, sustainable management of our precious water resources. With this pilot project model we can continue to seek funding to carry out similar efforts with other communities and local governments in Pohnpei. The local villagers and farmers have a lot of common sense to offer, as they know their resources better than anyone. The people are the source of the impacts we found in Nett, so they must be involved in the solution if we hope to create positive environmental change through co-management and cooperation.