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Nabaka Village Water and Sanitation Assessment Report, Fiji

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SOPAC SURVEY REPORT (PR153)

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Applied Geoscience and Technology Division

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1. INTRODUCTION

Nabaka Village is part of Yavusa Navakavu (a traditionally linked unit or clan) which comprises three other villages' including Muaivuso, Waiqanake and Namakala. Nabaka village is located approximately 13 kilometres from Suva City and is accessible via a dirt road from the main road. The village is home to 26 households with an average of 5-6 heads per household.

Figure 1: Nabaka Village (reproduced from Beukeringet al, 2007).

The SOPAC Division of SPC was requested by the Nabaka Village development committee to carry out a water and sanitation assessment for the village. The Nabaka Village development committee is intending to utilize the report to seek funding from donor agencies for improvement to their water supply and sanitation situation.

Based on the request, SOPAC Division staff, Ms. Iva Bakaniceva (WASH Officer) and Mr. Rodney Lui (Wastewater Officer) conducted the water and sanitation assessment. The assessment was conducted in two phases:

i) Community consultation by engaging community members in discussing the WASH issues in their village, on 25th May; and
ii) survey of the community water and sanitation facilities, on 26th May.

A senior official from the Ministry of Health (Ms Seruwaia Beci, Divisional Health Promotion Officer) accompanied the SOPAC team on 25th May, 2011.

2. BACKGROUND INFORMATION ON NABAKA VILLAGE

Nabaka village has a population of 183 people with a total of 26 households (Table 1).

Table 1: Nabaka Village Demography (Source: Mr. Peni Suveinakama: Village liaison person).

NABAKA VILLAGE DEMOGRAPHY		
1.	**Households**	**26**
2.	**Men:**	**55**
3.	**Women:**	**58**
4.	**Children:**	
	Birth – 9 years	**45**
	10 – 18 years	**25**

A village profile of health issues for Nabaka has already been conducted by the Ministry of Health and should be available from the Ministry through Mrs Seruwaia Beci.

The University of the South Pacific, Institute of Applied Sciences (IAS) through their FLMMA (Fiji - Locally Managed Marine Areas) project has also carried out some surveys in the village in managing their coastal resources. The action plan put together by the village as part of the IAS project incorporated discussions on sanitation and water issues. The notion of compost toilets was introduced by IAS with a keen interest by the community to host a demonstration compost toilet in the village. The plan is to first pilot it in one household so that the community can see it in action and hopefully adopt the idea in their individual homes. It is now planned to have the compost toilet first piloted at the Head of the Yavusa (clan) household through IAS.

In terms of water supply, a small dam was constructed in 2006 for collecting water to a central point for washing and bathing. The main water source for drinking, however, is rainwater despite the community having other water sources such as boreholes and spring water.

Mineral Resources Department (MRD) also setup a borehole to supplement community water supplies for the 3 communities in the immediate vicinity, including Nabaka and assessment of this was also carried out by MRD. In March this year, the Ministry of Provincial Development provided assistance to the water supply in the 3 villages of the Navakavu clan including Nabaka Village. The Ministry assisted the three villages by providing more than $45,000.00 to construct a 25,000 litre cement water tank in Namakala village. It was the intention that this 25,000 litre cement water tank will also supply water to Nabaka and Waiqanake Village. However, the tank currently remains unused as there are existing land issues in relation to the borehole source for the tank. The village where the borehole is located is seeking compensation for the use of their land.

This ongoing issue over land tenure has been a secondary reason for the Nabaka Village committee's request to SOPAC for assistance in managing their water resources sustainably.

3. COMMUNITY CONSULTATION

The community consultation was an interactive session and was very helpful in gauging community views.

Two activities were facilitated with each of the 3 groups (women, men and youth). The first activity looked at water roles while the other was identifying water and sanitation problems in the village, what could be done to address the problems, who was responsible for addressing the problems and what would be the benefits of addressing the problems. The second activity was done through the "Problem Tree" analysis.

3.1 Activity 1: Watery Role

The community members were asked to identify the different water sources that are accessible in the village. The water sources identified included rainwater, a river that flows from the mountains, a borehole and an old spring that the villagers resort to during periods of droughts. Community members were then asked on the most common water and sanitation problems that they faced.

The responses included:

- Long prone drought or dry season spell.
- Lack of or no water in the village.
- Contaminated water (e.g. bird droppings and dirty leaves inside the rainwater tank).
- Poor water storage.
- Poor grey water-disposal (wastewater from households).
- Littering especially on the beach.

The participants were then divided into three different groups of women, men and youth. The facilitator gave each group one of the water problems identified by them in the earlier discussion. The women's group picked lack of or no water in the village as their topic of discussion, the men's group picked contaminated water and the youth group picked long prone drought or dry season spell to discuss.

The group was asked to map out the effects of a particular water problem in their village. They listed down all the possible effects that they could think of which arose from having the water problem in their village. These effects were mapped out in a diagrammatic way. An example is given below from the women's group.

Figure 2: The women's group presentation on the activity "Watery role".

The community members appreciated the exercise and how it helped bring out the linkages water has to all other aspects such as social problems (domestic violence in particular).

Figure 3: Group discussions by the different working group and their presentation.

3.2 Activity 2: Problem Tree

The problem tree activity analyzed the most common problems that were identified from the previous activity using the concept of a living tree which has leaves, fruits and roots. Community members were asked to write solutions to the problems on the leaves. Some of the solutions included:

- Have proper wastewater disposal, this includes wastewater coming from kitchen homes (greywater).
- Have proper solid waste disposal i.e. proper disposal of rubbish that cannot be burned.
- Active community participation in decision making.
- Working together in the community.
- Boil drinking water.
- Everyone should be responsible for looking after the cleaning of their water sources.
- Rainwater tanks to be provided to homes that do not have access to a rainwater tank.
- Clean rainwater tank regularly.
- Look for assistance from government and donor agencies in providing them with clean drinking water.

On the fruits, participants were asked to write down the benefits of having water conservation, access to clean water and proper sanitation. The community responses included:

- Cleaner environment for Nabaka Village.
- No sickness related to drinking contaminated water such as diarrhea and skin diseases.
- Less medical expenses.
- Less conflict in the homes.
- High school attendance as children are able to attend school every day without getting sick.
- More responsible community.
- Proper waste disposal.
- Less rubbish in the village.
- Wastewater are properly disposed of.

On the roots, participants were asked to write down who they thought is responsible to assist them with their water problems:

- Nabaka village community members
- Department of Environment
- NGOs
- Department of Mineral Resources (MRD)
- Lands Department
- Donor Agencies (UNDP, EU etc)
- Water Authority of Fiji
- Ministry of Health
- Provincial Development.

Overall, Nabaka community members feel that financial and technical support is vital in achieving their vision of access to clean safe water and proper sanitation in their community.

Figure 4: Participants writing down on their "fruits' some benefits of having good water management and presenting their discussion back to the whole group.

Table 2: Community assessment.

Date	Number of participants	Comments
25/05/11	Men:11 Women:12 Youth:5 (male)	The interactive sessions were very helpful in gauging community views.
26/05/11	Men: 9	Due to the nature of the discussions and weather hampering a visit up the catchment area, a few village men and the key contacts (development committee and village chief) were present to discuss the village history and issues surrounding water & sanitation.

4. SURVEY

The survey was carried out through observation around the village environment on their current water supply and existing waste management in the village. The findings and some recommendations on possible solutions are highlighted and mentioned in the following section.

5. FINDINGS AND RECOMMENDATIONS

5.1 Water Supply

5.1.1 Current Situation

The current water sources in the Nabaka Village include rainwater, borehole, river and spring water. There are 7 rainwater tanks (500 litres each) currently in use and this is divided as 4 households per rain water tank. During times of drought, all households use water from the old spring. From the community consultation the community identified their major water usage such as drinking, cooking, washing, farming, bathing and toilet.

At the moment, the village relies heavily on rainwater for drinking and cooking. Nabaka Village is not connected to the reticulated water system by the Water Authority of Fiji but there are plans for

the village to be connected to the system; but some land issues with another village has currently halted the progress. From observation, it was noted that most households stored water in tanks or collected rainwater in empty containers and drums. There is a community rainwater tank which is attached to the village hall.

A 1000 L capacity water tank is currently present in the village, and is being worked on for use by the village. At the moment the tank is empty but is intended to provide relief in times of drought.

Rainwater tanks have been received from:

- Rotary Club Fiji
- Fiji Water Foundation
- UNICEF
- European Union (2009 assistance − 1 tank for 3 homes, as a supplement for other drinking water sources)

The village has a stream water supply via a dam constructed some 6 years ago.

Note: Water demand calculations were not performed during the assessment.

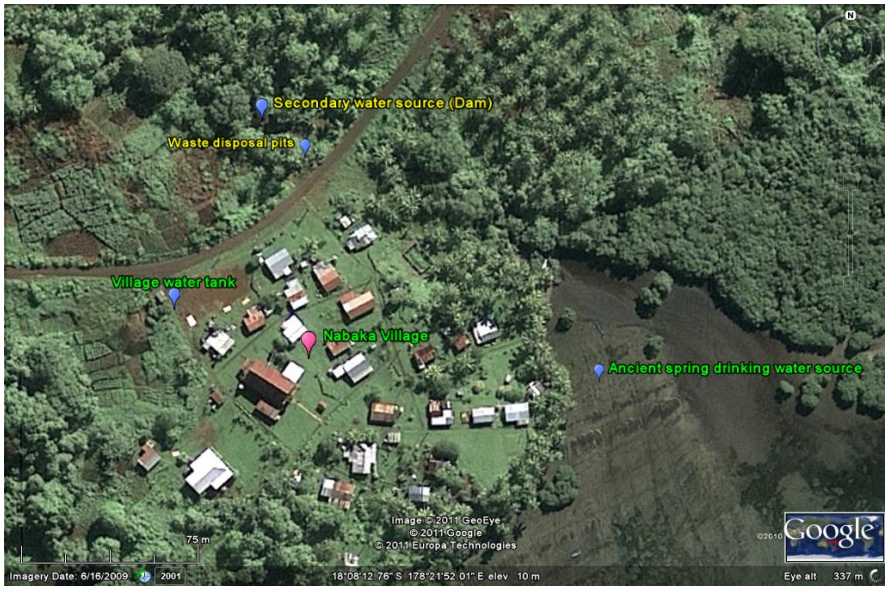

Figure 5. Locations of water sources and waste disposal pit on the map at Nabaka Village.

Figure 6: Rainwater is the major source of drinking water in the village.

Figure 7: Water is also collected in drums and empty containers.

Figure 8: The spring water source that the village relies on during heavy droughts or dry season.

Figure 9: The dam that was constructed by the village and is now being used for bathing and washing.

5.1.2 Key Issues

The key water issues compiled through community consultation and actual site survey includes:

- Lack of water resources management. The village has several water sources, however, these are not developed or utilised to their full potential.
- Compromised water quality due to lack of source water protection to enable use of other water sources such as the dam and spring.
- Limited storage in the village, has impacts during periods of drought.
- Not every household has its own rainwater tank, equity issue.
- Water conservation practices.
- Poor household water storage and handling.
- Lack of sanitary protection for the rainwater tank system compromising water quality (rainwater source).

- Land tenure issue to get increased access to water from the huge 25000 L storage tank, which is currently not being used.
- Health and social problems related to quantity and quality of water.
- Lack of data on the water demand for the community, current and projected in line with estimated village population growth.
- Community perception that external agencies are responsible for their water. External agencies would be able to increase the access to water quantity through provision of tanks or like, however, the community members should be responsible for maintaining the supply system and for the safe quality of their water.

5.1.3 Recommendations

The following are recommendations to assist improve the key issues identified above:

- All houses should have their own rainwater tank. The tank installation should ensure that the entire roof catchment is guttered and a first flush device is installed. The size of the tank to be installed needs to take into account the roof area, amount of rainfall in the village, amount that needs to be captured to meet household water demand and to ensure sufficient storage to get through during small episodes of no rainfall.
- The community needs to be empowered to keep their drinking water safe through simple drinking water safety planning (sanitary inspection) and some simple water treatment techniques.
- The existing water sources such as the dam and spring should be developed further through source protection. This should be preceded by water quality testing of the source water for bacterial and chemical parameters. The community needs to work together in an integrated manner to look after their water resources.
- The roof catchment of the village hall should be fully gutted to capture rainwater for communal storage and use.
- Education and awareness for the community members on proper household water storage and handling, wise use of water (water conservation) and strengthened hygiene practices.

5.2 Governance

5.2.1 Current Situation

The setup of the governance system in the village is a mix of rural village setting and village committees comprised of village members. This is illustrated as such in the diagram below; the development committee amongst other committees are tasked with looking after key areas identified by the community such as: Water, Education and Church. It was interesting to note that there was no Health sub-committee, although issues regarding health were discussed at great length during the community brainstorming sessions.

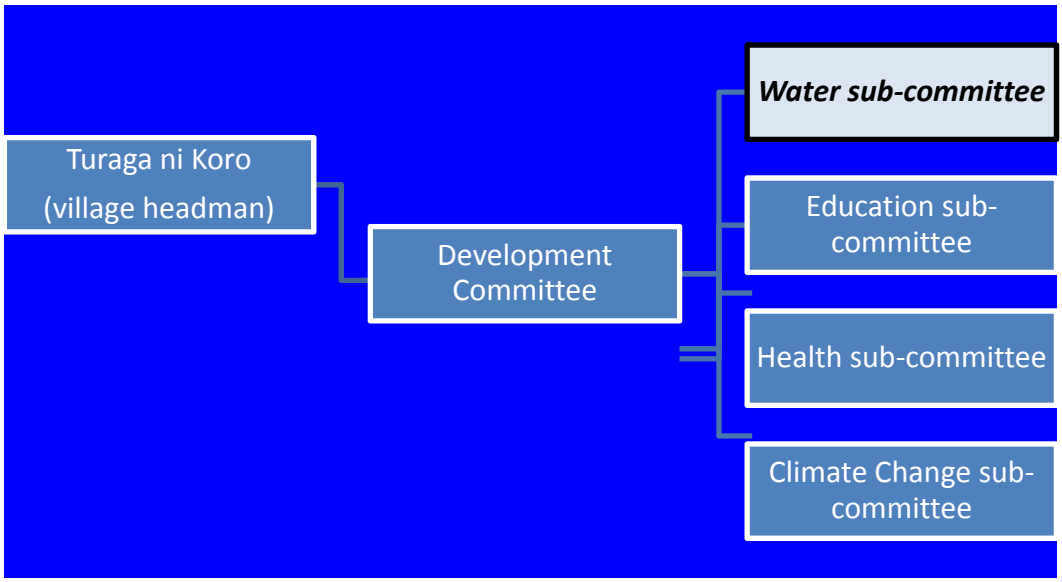

Figure 10: Village governance structures & committee representation.

5.2.2 Key Issues

The key governance issues compiled are:

- The role of the water sub-committee is not clearly defined.
- There are no regular WASH (water supply, sanitation and hygiene) awareness trainings to community members.
- Lack of or no women and youth representatives in the Development Committee even though there is a Women's Sub-Committee.

5.2.3 Recommendations

The following are recommendations to assist improve the key issues identified above:

- The water sub-committee needs to have a clearly defined role and perhaps have an agreed Terms of Reference.
- Consider changing name of the Water sub-committee to WASH sub-committee to reflect its role in water supply, sanitation and hygiene.
- There should be more community empowerment trainings on WASH activities driven by the committee.
- It may be useful to have a sub-committee that specifically looks after the health issues in the village.
- Strongly recommend to have women and youth as part of the development committee or the WASH/health sub-committee as they (women and youths) are the major water users in the village and in homes.

5.3 Sanitation

5.3.1 Current Situation

Water sealed toilets are the most common types of toilets in the village with some flush as well as pit toilets *(Annex 1).* FLMMA has introduced the community to the concept of compost toilets and reception for the technology was noted to be favourable.

Solid Waste

The main method of solid waste disposal is via burial pits. Solid wastes from households are gathered and taken daily to a burial pit (approximately 6 m x 4 m x 1 m) and dumped. These pits are located some distance away from the community but near the water source that is used for bathing and cleaning. The waste pits are managed by the youths in the village who keep track of the volume of waste and are also in charge of burial and digging of new pits once old ones have become unusable.

Liquid waste (greywater & black water)

Liquid wastes from households are normally disposed of via plumbing into septic systems. Washing at the stream adds to grey water pollution into the stream. For water-seal and flush toilet systems, black water is disposed of into septic systems. Most pit toilets are located far away from the houses.

Figure 11: Some common types of waste disposal in the village such as burning.

Figure 12: Black water are disposed into septic tank system.

Figure 13: Some households also practice composting.

Figure 14: One of the communal pit.

5.3.2 Key Issues

The key issues identified through community consultation and actual site survey include:

- Poor solid waste disposal especially along the beach.
- The current rubbish pits are dug quiet close to the dam that was constructed to be used for washing and bathing.
- Not all households practice composting of vegetables peelings and kitchen wastes.
- Availability of water for use in the flush toilet.
- Poor design of septic tank which can allow seepage of wastewater into the ground.
- Absence of soap at hand washing basins.

5.3.3 Recommendations

Some recommendations to help address the key issues identified above:

- Villagers to practice recycling of plastic wastes especially bottles and juice cans.
- All households to practice vegetable composting for use in the vegetables gardens as source of plants nutrients.
- Carefully choose suitable site to locate the open dug pit so that it isnot located close to the water source.
- General community awareness training or campaign on proper waste and hygiene (hand washing).
- It is highly recommended that the idea of compost toilet be practiced in the village given the current water situations in the village.
- Ensure that septic tanks are made to the proper standard and inspection plan put in place to ensure they do not leak or overflow. Having wetlands to treat septic effluents could be explored in the absence of compost toilets.

6. REFERENCE

Beukering, P, Scherl, L. M, Sultanian, E, Leisher, C and Fong, P. S. (2007).*Case Study: The role of marine protected areas in contributing to poverty reduction*. Suva, Fiji, Institute of Applied Sciences, University of the South Pacific.

7. ANNEX

Information on Nabaka Village Water and Sanitation Facilities

Information	Type	Totals	Details if needed	Comments
Sanitation (toilet) systems	**Flush**	**10**	Only a few houses in the village have access to proper flush toilet facilities.	One of the major problems which hinder the villagers from getting flush toilet is the unavailability of water. Some houses that have flush toilets still need to fetch water from the river in order to maintain their flush toilets.
	Pit	**2**	Two houses still have pit toilets in the village.	Having such facilities that pose threat to the villager's daily hygiene is a major problem. Improper drainage is perhaps another problem of having these pit toilets.
	Water seal	**15**	Quite a portion of the houses in the village have access to water seal toilets.	Similar to the above. Another aspect worth considering is the amount of space these toilets consume in the compounds.
Drinking water source	**Rainwater tank**	**27**	All houses in the village have access to tank water. Four houses per tank (i.e. 500 liters). Usually not enough most of the time.	Villagers sometimes find the tank waters to be contaminated with dirt and mosquitoes. Inadequate knowledge to maintain safe drinking water from the tanks is also a concern.
	River/stream	**All households**	All houses also depend on the river water during long periods of dry spell where the tanks dry up. All other three neighbouring villagers use the same stream the Nabaka villagers use for drinking and washing.	The river does not only cater for the village needs during dry spells but also caters for the needs of the other neighboring three villagers including the students that go to school. One problem that the villagers face is the lack of awareness and capacity to help maintain the river to sustain the villagers needs during tremendous dry conditions.
Total number of septic systems in use		**7**	Most of these septic tanks are not concrete ones but are naturally dug-up and used for this reason.	This could be a threat to all the villagers particularly the children. Improper/lack of proper drainage systems within the village would help flourish airborne diseases and improper hygiene.

(Source: Mr. Peni Suveinakama)